

## The Effectiveness of Traditional Persian massage (Kermanshahi Style) on disability of lumbar radiculopathy: Quasi-experimental study

### Abstract

Massage is one of the most extensively employed therapeutic methods in Persian medicine for the treatment of back pain and its complications. To study the effectiveness of **Kermanshahi Style** massage in reducing lumbar radiculopathy disability this Quasi-experimental study was performed. The current research is a quasi-experimental clinical trial. The intervention group (traditional massage) was sampled from Ostad Kermanshahi traditional massage clinic, while the control group (common treatment) was sampled from the neurosurgery clinic of Imam Khomeini Hospital. Using convenience sampling, 26 individuals who had referred to each of the aforementioned centers were selected until achieving the required sample size. Patients with radicular pain for at least 8 weeks before visiting either of the clinics were included in the study. The degree of disability was measured using the "Roland-Morris Low Back Disability Questionnaire (RMDQ)" in three sessions; at first visit, one month and three months after starting the treatment. The results established that the mean of RMDQ score decreased during the follow-up period, and that considering the statistical value for repeated-measures analysis of variance (92.06) and p-value <0.001, the mean difference between the disability caused by lumbar radiculopathy in two measurements (end of the first month and end of the third month) is statistically significant. Massage is more effective in reducing the disability caused by back pain compared to conventional treatment. In patients treated with this massage style, the disability caused by lumbar radiculopathy decreased to greater effects than the conventional treatment method.

**Keywords:** *Persian medicine, Iranian traditional massage, Persian massage, Sciatica, lumbar radiculopathy, Kermanshahi Style*

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### Introduction

Persian medicine refers to a body of literature on therapeutic knowledge that was historically taught to the physician in Jondishapur School (1, 2). With the emergence of Islamic civilization, this body has been translated by a scientific institution called *Bayt al-Hikmah* and hence made available to all Muslims (3). After a significant period of negligence, this knowledge has once again been favored in the last decade and is being extensively employed throughout the country (4).

Sciatica is a back pain characterized by chronic, radiating, pain which has challenged physicians throughout history. The etiology and treatment approach to this complication have also frequently altered throughout history (5). A comparison of the definition and explanation of lumbar radiculopathy (sciatalgia) in common medicine and "*Ergh al-Nessa*" in Persian medicine shows that these two diseases, although similar to each other in terms of symptomatology, vary in terms of the involved organ and the corresponding etiology (6). The pain or paresthesia that radiates to the hip or leg and is felt in dermatomal or myotomal form is called Sciatica in general and lumbosacral radicular pain in particular. These symptoms are caused by pressure or irritation of any of the five nerve roots of the sciatic nerve on the right or left or both sides of the hip. Other symptoms include tingling and trouble walking. That is, sciatica refers to a set of symptoms, rather than a diagnosis, of the source of irritation and pain. (7)

In Persian medicine, the involved organ can also be the veins of the lower limbs, in addition to joints, nerves, or muscles (the last three being common with the conventional medical view) (6). Joint diseases in traditional medicine, if not caused by trauma, are divided into two general types, namely simple (non-material) and material (8). Yet, cases of non-material "*Ergh al-Nessa*" are presumed to be very rare. The cause of the disease is the filling of the vein "*Ergh al-Nessa*" with undesirable humor (akhlāt) (9). Massage is used in many therapeutic methods in Persian medicine, back pain being one of the rather prominent ones (10-12).

Guidelines for approaching lumbar radiculopathy in conventional medicine, favor an initial trial of conservative management, including patient education, staying active/exercise, manual therapy (such as McKenzie exercises), and non-steroidal anti-inflammatory drugs (NSAIDs) as first-line treatments.(13) In Persian medicine, material dystemperaments, regardless of the type of humor causing the disease, the general steps of treatment include cleansing the organ from abnormal humor through evacuation (*Estefrgh*), correcting the dystemperaments, and strengthening the organ and sciatalgia is a material dystemperaments in lower extremity (8).

Although the literature on reliable criteria for the differential diagnosis of humor for "*Ergh al-Nessa*" is highly elusive, contemporary traditional medicine practitioners generally agree on the multi-humor nature of the "*Ergh al-Nessa*"

*complication*. Moreover, traditional medicine practitioners and masseurs settle that rubbing the painful part helps the corresponding humor to be ripped and ready to exit from the painful organ.

Professor Ismail Nazem argues that massage is effective in relieving back pain of any humoral type owing to its role in maturing the humor. A review of the relevant literature indicates that although most cases have focused on the rubbing procedure itself, the type of oil which is used for rubbing is decided based on the humoral cause of the complication. If *Tamrikh* (lit. oil rubbing) is to be used interchangeably with *Dalk* (i.e., traditional form of rubbing), the range of options becomes even broader. Nevertheless, in oil rubbing, the medicinal effect of oil is perceived to be the source of treatment, while in *Dalk*, the act of rubbing is the apparent source of treatment.

A clinical trial sought to implement 10 weeks of treatment with two styles of structural and relaxation massage on patients with chronic non-specific low back pain, the findings to which revealed that both types of massage are equally effective in improving back pain and that the beneficial effects are sustained for up to 6 months of follow-up. Another clinical trial on the effects of various types of complementary treatments (i.e., massage, acupuncture, manipulation) for low back pains reported that they have a quick and short-term therapeutic effect, their benefits tend to diminish over time, and hence more studies are required to conclude their long-term effects.(14) Cochrane intervention review affirms that chronic LBP has improvements in pain outcomes and functional improvement with massage when compared with inactive controls, in the short-term follow-up.(15)

Based on the aforementioned discussion, the purpose of the current study was to study the efficacy of Kermanshahi-style traditional Persian massage in reducing the disability caused by lumbar radiculopathy. This style of massage is one of the therapeutic methods of Persian medicine, which has been carried from generation to generation in the Mahlooji Kermanshahi lineage. This style of massage has been taught for about 12 years in the faculties of Persian Medicine and has been implemented in the health centers of traditional medicine. Now Kamran Mahlooji is the leading practitioner of this style. (16)

## Materials and Methods

The present study is a quasi-experimental clinical trial. Women and men aged 25 to 55 years suffering lumbar radicular pain and other inclusion criteria in the 8 weeks leading up to referral were considered for the study. The sampling of the intervention group (traditional massage) was performed at the traditional massage clinic of Ostad Kermanshahi, while sampling of the

control group (conventional treatment) was performed at the neurosurgery clinic of Imam Khomeini Hospital.

Twenty-six people who had been referred to each of the two centers were sampled using convenience sampling. One participant was then excluded from each group. One from the massage group due to pregnancy and one from the control group due to undergoing an acute abdomen surgery a complete and standard examination of back pain and radiculopathy was performed in the traditional massage clinic by the researcher, and by neurosurgeons in the neurosurgery clinic. After completing the consent form, the Roland-Morris disability questionnaire (RMDQ) was provided to the research participants. Questionnaires were filled once at the beginning of the study before the treatment, one month after the start of treatment and at the end of the three months of treatment for each patient, the results from which were then comparatively analyzed for both groups

The patients from the control group (conventional method) received conventional treatments for chronic radiculopathy, including injectable anti-inflammatories, oral pain relievers, and muscle relaxants. In the control group, patients were referred to the clinic one month after the first visit and received new prescriptions if needed.

As for the intervention group (that is, traditional massage), the patients were treated using traditional Kermanshahi-style massage. As such, during the first month of intervention, patients participated in the treatment sessions every other day, while in the second month, the sessions were held twice a week, and in the third month, traditional massage was performed once a week for each patient. Disability was evaluated using Roland-Morris's questionnaire. The Roland Morris Disability Questionnaire (RMDQ), is a widely used health status measure for low back pain. The score can therefore vary from 0 to 24. (17) The reliability and validity of the Persian version of the questionnaire have been confirmed in Iran (18). Kolmogorov–Smirnov test was used to check the normality of variables in both groups. The changes in the primary outcomes of the study (pain intensity) were analyzed using repeated-measures ANOVA. The value by which a finding was assumed to be statistically significant was considered  $p < 0.05$  in this study.

## Findings

The results from demographic studies revealed that the greater share of patients participating in the conventional treatment was female (56%), while the traditional treatment was more welcomed by males (56%). The foremost educational level of patients with conventional treatment was an elementary degree (44%), while a similar indicator for the traditional treatment was a master's degree (44%). Most participants from the

control group (36%) and intervention group (40%) were between 35 and 45 years old. Only 4% of patients were over  
*Table 1: Characteristics and pain records of patients*

55 years old in the control group while the intervention group had no participants over 55.

Characteristics and pain records		Conventional treatment	Traditional massage
Duration of pain in months	Less than 5 months	7 (28%)	12 (48%)
	5-10 months	7 (28%)	6 (24%)
	10-20 months	6 (24%)	2 (8%)
	20-30 months	1 (4%)	0 (0%)
	30-40 months	1 (4%)	1 (4%)
	More than 40 months	3 (12%)	4 (16%)
Radiation to lower extremities	Right side	8 (32%)	6 (24%)
	Left side	14 (56%)	16 (64%)
	Both sides	3 (12%)	3 (12%)
MRI diagnosis report	Normal/bulging	17 (68%)	19 (76%)
	Protrusion	6 (24%)	6 (24%)
	Sequestration/extrusion/stenosis	2 (8%)	0 (0%)

mean

Repeated measures ANOVA was used by the researchers to examine the significance of the effect of time in reducing the disability caused by lumbar radiculopathy one month after the start of treatment and at the end of the three months of treatment, the results which are presented in Table 1 (The values for samples pertain to both sample groups common treatment and traditional treatment). The data from Table 2 reveals that the mean of the variable for disability caused by lumbar radiculopathy has decreased during the follow-up period, and that considering the statistical value for repeated-measures analysis of variance (92.06) and p-value <0.001, the

difference between the disability caused by lumbar radiculopathy in two measurements (end of the first month and end of the third month) is statistically significant. This in turn indicates that the self-reported disability caused by lumbar radiculopathy has decreased during the follow-up period, and hence the duration of time has a statistically significant effect on the disability caused by lumbar radiculopathy. Furthermore, the findings revealed that the variable of time, with a correlation coefficient of 0.65, is a major predictor of changes in disability caused by lumbar radiculopathy.

*Table 2: Findings of Repeated-measures ANOVA on the effect of time on disability caused by lumbar radiculopathy (from the end of the first month to the end of the third month)*

	Mean	95% CI	SD	Repeated-measures ANOVA	correlation coefficient
Second-time disability measurement	10.65	9.2-12	0.71	F=92.06 (p<0.001)	0.65
Third-time disability measurement	6.72	5.32-8.12	0.69		

Table 3 presents the results on the effectiveness of the traditional Persian massage on the disability caused by lumbar radiculopathy. The mean of the variable representing disability caused by lumbar radiculopathy was calculated to be 6.68 for the intervention group (i.e., traditional massage), which was lower than 10.60, calculated for the control group. Considering the obtained values of F=9.86 and p-value=0.003 in repeated-measures ANOVA, the mean difference between the variables of disability caused by lumbar radiculopathy in the two types of treatment, namely traditional, is significant. That is, patients

treated with traditional massage have gained better results in terms of disability caused by lumbar radiculopathy compared to common treatments. The coefficient correlation between the variables of disability caused by lumbar radiculopathy and type of treatment was calculated to be 0.17, hence rejecting the hypothesis stating that “the level of effectiveness of traditional Iranian massage on reducing the disability of lumbar radiculopathy is similar to conventional treatments.: Therefore, traditional Iranian massage is more effective than common treatment in reducing disability.

*Table 3: Findings of Repeated-measures ANOVA on the effect of type of treatment on disability caused by lumbar radiculopathy (from second and third measurements)*

	Mean	95% CI	SD	Repeated-measures ANOVA	correlation coefficient
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Disability in the conventional methods group	10.60	8.82 - 12.37	0.88	F=9.86 (p=0.003)	0.17
Disability in the traditional massage group	6.68	4.90 – 8.45	0.69		

The values of the second and third measurements

Figure 1 depicts the plot for disability caused by lumbar radiculopathy against the type of treatment type. Since the lines representing the disability caused by lumbar radiculopathy one

month after the start of treatment and at the end of the three months of treatment for common treatment (blue) and traditional treatment (green) do not intersect, there is no mutual effect therebetween.

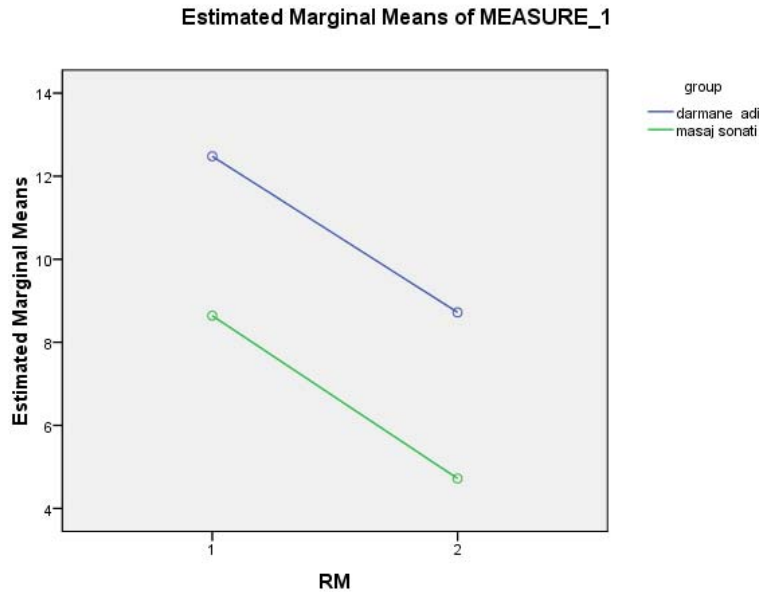


Figure 1: Changes in the variable of disability caused by lumbar radiculopathy using different treatment methods

### Discussion

The findings of the study revealed that traditional massage (Kermanshahi style) can significantly improve disability caused by chronic lumbar radiculopathy and yields more pronounced benefits compared to the common treatment. ODI (an indicator of range of motion) increased by 6-11 points. Moreover, the attenuation of the MMT of muscle strength and sensory abnormalities were significant.

One R.C.T showed that a short-term low-calorie diet (LCD) advised in Persian medicine can reduce pain and disability in patients suffering from chronic sciatica ( $p < 0.001$ ). (19)

[Syal Kumar](#) et al did not find meaningful improvement in function or disability according to RMDQ from 6 hours of ayurvedic massage in short-term observation period. (20)

Since there is no specific maneuvering technique in traditional Iranian massage (Kermanshahi style) for correcting disc protrusion – dubbed as the main cause of radicular pain in conventional medicine - its efficacy in alleviating radicular pain may not seem rational. Newly established evidence, both from histology and imaging, confirms the spontaneous regression of herniated disc and even ruptured ones subsequent

to conservative treatments (21,22), Since overall incidence of lumbar disc herniation (LDH) reabsorption is 66.66% according to a meta-Analysis, conservative treatment may become the first choice of treatment for LDH complications (23) and massage is a safe conservative treatment.

Collective evidence suggests that traditional Iranian massage (in particular, Kermanshahi style) has no adverse side effects for patients with chronic lumbar radiculopathy, and given the overall psychological factors (that is, positive and effective relationship with the therapist during the therapeutic period, and the positive attitude of patients towards traditional treatments), general pain-relieving effects of massage, the perceived cleansing of the involved organ from inflammatory substances and stimulating pain receptors (Abnormal humor), relief of spasms that the patient unconsciously suffers following the first pain attack, traditional Iranian massage (Kermanshahi style) is hence proven be highly effective in reducing disability of patients with chronic lumbar radiculopathy.

### Conclusion

Considering that the results of the study indicated the efficacy of Kermanshahi style massage in chronic lumbar radiculopathy

disability, it is recommended adjuvant with common nonsurgical treatments.

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### Statement of Ethics and Trial Registration

All participants were asked to sign the informed consent willingly at their first visit. This study was conducted according to common standard guidelines for clinical trials (Declaration of Helsinki) and approved by the Ethics Committee of Tehran University of Medical Sciences (code 12-24-81-21825). This study was registered in Iranian Clinical Trial Registry (IRCT2012061810060N1).

### Conflict of Interest Statement

The authors declare that there is no conflict of interest in the current study.

### Funding Sources

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