

Does Combining Deep Tissue Massage and Stretching Help with the Healing of Low Back Pain Injuries?

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Abstract Low back pain (LBP) is a condition that affects the lower back abnormally and causes pain, which makes it difficult for the affected person to move. Thus, in order to cure Low Back discomfort (LBP) and alleviate discomfort, particular care is required. This study used a one-group pretest and posttest design as a pre-experimental method. In this study, the findings of the initial test data (pretest) were measured in the form of low back pain results using the VAS, Modified Schober Test, Fingertip to Floor, and ODI, after which deep tissue massage and stretching were used as a form of treatment. Patients receive therapy three times per week for three weeks before the final data assessment (Posttest) is conducted. Patients at the Sports Science Laboratory at Padang State University who had sustained low back problems over the previous five months served as the study's subjects. Purposive sampling was utilized in this study's sampling to ensure that there were 20 participants with ages ranging from 20 to 60. The SPSS Version 26 program is used for the analysis in this study. The outcomes demonstrated that employing a combination of deep tissue massage and stretching had a substantial impact on the indicators of pain, flexion, extension, right

flexion, left flexion, and function, with a significant value indicating $0.000 < 0.05$. Given that the left flexion indicator had a significance value of $0.001 < 0.05$, it can be said that the deep tissue massage and stretching treatment made a substantial difference. According to the study's findings, patients' recovery times from low back injuries are significantly slowed down when deep tissue massage and stretching are combined. Stretching and deep tissue massage can then be used in conjunction to treat and repair low back pain injuries.

Keywords Low Back Pain, Deep Tissue Massage, Stretching

1. Introduction

Low back pain is an abnormality that affects the lower back and is followed by a painful sensation that limits your range of motion. This occurrence has spread to be a widespread global health issue [1]-[4]. It turns out that 60-80% of bodily disorders are impacted by low back

discomfort brought on by lumbar spondylosis [5]. Additionally, the condition, which is sometimes referred to as musculoskeletal [6], has contributed to widespread issues with disability around the world [7], [8], 540 million people have been reported to reduce their activities because of low back pain [9], and 70-85% of people report having experienced low back discomfort at least once [10].

According to Yang's research, both industrialized and developing countries have been devastated by this sickness [11]. As shown by the finding that this disease is widespread in Thailand and has a higher incidence among manual laborers, where it has impacted 30% of the population [12]. A musculoskeletal condition that affects 70–80% of individuals is low back pain [13], [14]. It mainly affects women who are 45 to 60 years old [15]. Low back pain injury cases have reached 7.6-37% in Indonesia, and they frequently affect people between the ages of 20 and 40 [16]. A further statement by [17] noted that low back pain and neck pain are two of the leading causes of health issues leading to years of disability, which has had a significant negative influence on social, economic, and personal spheres [18].

Poor posture contributes to the mechanical stress on the lower back, which results in low back pain symptoms [19]. Furthermore, people of all ages are affected by chronic non-specific low back pain, which has major health effects on the body [20],[21]. Even low back discomfort brought on by disc degeneration influences a patient's gait [22], and daily life [23]. In addition, trauma, excessive activity, and the improper sitting position while working can all contribute to low back pain. This claim is supported by [24]. Approximately 56.9% of medical secretaries report having low back discomfort as an issue.

According to research, low back pain is a persistent condition that can negatively impact a patient's quality of life [25]. If the sufferer is exposed to chilly air, their condition will become more painful [16]. In addition, [23] noted that low back pain might affect the posture of the spine at the waist, lower oxygen and blood circulation, and decrease muscular function. Thus, one of the causes of patients seeking medical attention for low back discomfort is this [26]. About 2.7 million people who suffer from low back pain visit the US emergency room each year [27]. Consequently, this symptom is one of the causes for doctor visits [28]. These evaluations have demonstrated that low back pain is the most prevalent condition and is a symptom of pain that affects the lower back.

Stretching and deep tissue massage are the remedies suggested to treat this condition. According to prior studies, massage therapy has been suggested as a healthy treatment option for treating low back pain by more than half of doctors in the United States [1], and it has been suggested to use massage therapy [29]. Additionally, research indicates that health professionals are at a high

risk of developing low back discomfort [24]. Patients with low back pain who received a gentle, extended massage treatment saw improvements in their quality of life and a reduction in their discomfort [5]. Numerous studies have demonstrated that sports massage affects flexibility [30], blood flow [31], and injury rehabilitation [32]. More advantages in the conservative management of low back pain may result from applying soft tissue manipulation [33].

The third advantage is that massage therapy helps patients function better and experience less back discomfort [10]. Low back pain can be effectively treated with massage therapy and acupressure administered twice weekly over the course of 12 sessions [16]. Some website visitors claimed that according to a Goertz research, 81% of doctors had advised patients to undergo drug and non-drug therapy [34]. Although previously [35] conducted studies on the effects of deep tissue massage and NSAIDs, and used deep tissue massage and therapeutic massage to treat low back pain injuries [36]. The results of this research, specifically the use of deep tissue massage and stretching for low back pain injuries, are not followed up until 2023. Based on this assertion, there is a research gap that has to be filled, which also makes this study significant. The purpose of this study is to demonstrate the efficacy of stretching and deep tissue massage in the treatment of low back problems.

2. Materials and Methods

This study is a pre-experimental design with a single group pretest and posttest. Samples are measured both before and after treatments are administered in order to collect data for the pretest and posttest. In order to treat patients, researchers combined deep tissue massage and stretching. This was done after compiling the results of the initial test data (pretest) in the form of low back pain results. Patients receive therapy three times per week for three weeks before the final data assessment (Posttest) is conducted.

2.1. Participants

Patients at the Sports Science Laboratory at Padang State University who had sustained low back problems over the previous five months served as the study's subjects. Purposive sampling was chosen in this study since the low back pain patients were non-specific, willing to participate in correspondence, male, and reporting impaired motor function. They used a sample-size calculator to help them decide how many samples to take, and 20 persons were selected for the treatment sample. According to the data gathered, the study's participants ranged in age from 20 to 60 years.

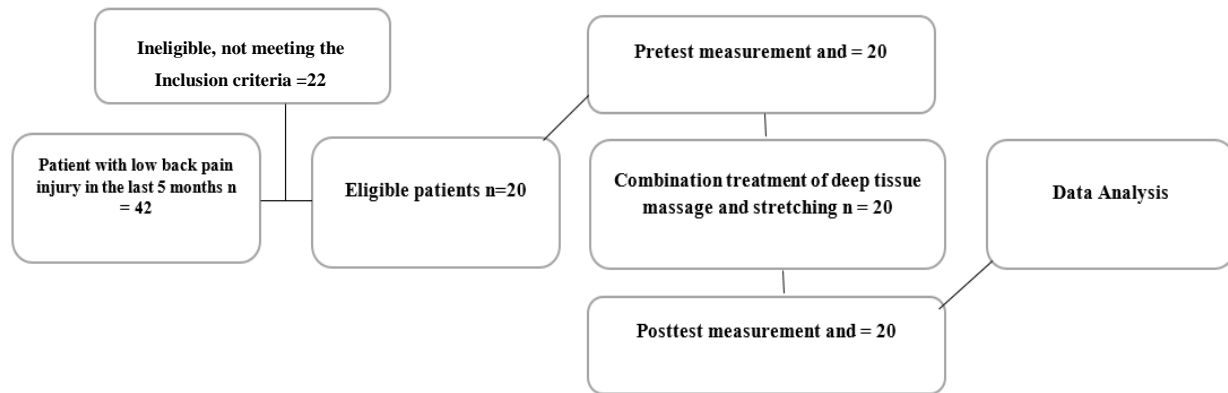


Figure 1. Chart of Research Procedures

2.2. Procedure

The tool used to measure low back pain is needed to collect data on the condition, such as the VAS (Visual Analogue Scale) used to gauge how much back pain a person is experiencing. For the hip joint's ROM (Range of Motion), the modified Schober test is used. After that, use Fingertip to Floor to gauge left and right side flexion movements, and then use the ODI (Oswestry Disability Index) to gauge bodily function. Data from the ODI posttest were specifically collected three times, at 24, 48, and 72 hours following therapy. In the investigation, additional tools such as lubricants, towels, a massage table, masks, and hand sanitizer were used to provide deep tissue massage therapy with stretching. Figure 1 depicts the flowchart of the research process.

2.3. Statistical Analysis

To offer a summary of the research data and to make it easier to display the research data, descriptive analysis of the research data was performed. To assess the difference between the mean pretest and posttest findings, normally distributed data were examined using the t test, and the significance was helped by the SPSS 26 application using a paired sample test.

3. Results

Table 1. Sample Group by Age

	Age Range	Amount	Percentage
Deep Tissue Massage a combination of stretching	20-29	9	45%
	30-39	3	15%
	40-49	5	25%
	50-59	3	15%

These results present an overview of the sample after receiving a combination of deep tissue massage and stretching, and the sample data in this study will be reported by age group. Table 1 displays the findings of

sample data per age group.

According to the chart above, three persons in the 30-39 age range and nine people in the 20-29 age range are the samples who will receive deep tissue massage along with stretching treatment. Additionally, 3 people in the 50-59 age range and 5 people in the 40-49 age range each had a proportion of 15%.

Table 2. Results of the Shapiro Wilk Normality Test Data Pretest and Posttest

Shapiro-Wilk	Statistic	df	Sig.
VASPRE	0,850	20	0,105
VASPOST	0,930	20	0,158
FLEKSIPRE	0,975	20	0,849
FLEKSIPOST	0,962	20	0,594
EKSTENSIPRE	0,907	20	0,156
EKSTENSIPOST	0,890	20	0,127
DEKTRAPRE	0,850	20	0,115
DEKTRAPOST	0,936	20	0,201
SISNISTRAPRE	0,923	20	0,113
SINISTRAPOST	0,894	20	0,132
ODIPRE	0,930	20	0,157
ODI24	0,992	20	1,000
ODI48	0,885	20	0,121
ODI72	0,943	20	0,271

The significant value of each indicator has a p value > 0.05, which indicates that all indicators in the Deep Tissue Massage combination of stretching are normally distributed, according to the findings of the normality test in table 2. The findings of this investigation show that the data is normally distributed, allowing the t test to be applied.

A significant value of 0.000 was found for the indicators of pain, flexion, extension, right flexion, and function based on the hypothesis test on the indicator of deep tissue massage combined with stretching treatment. The

significance level for the left flexion indication was 0.001. It can be inferred that there are significant differences in each indicator of the deep tissue massage combo stretching treatment since both values are less than 0.05. These findings support the notion that deep tissue massage and stretching together significantly improve patients' ability to recover from low back pain. Table 3 displays the outcomes.

Based on table 4, it is evident that the pretest and posttest data's minimum, maximum, mean, and standard deviation, together with the deep tissue massage and stretching treatment, show that the posttest score is better, however there is not a significant difference. Detailed information is available in Figure 2.

Table 3. T test for Low Back Pain Healing Data

Data	test	Lower	Upper	t	df	Sig. (2-tailed)	Information
Pair 1	VASPRE - VASPOST	22,99032	34,30968	10,595	19	0,000	Sig.
Pair 2	FLEKSIPRE - FLEKSIPOST	-1,02894	-0,59106	-7,743	19	0,000	Sig.
Pair 3	EKSTENSIPRE - EKSTENSIPOST	-1,19244	-0,68756	-7,794	19	0,000	Sig.
Pair 4	DEKTRAPRE - DEKTRAPOST	2,46158	4,83842	6,428	19	0,000	Sig.
Pair 5	SISNISTRAPRE - SINISTRAPOST	1,30821	4,33179	3,904	19	0,001	Sig.
Pair 6	ODIPRE - ODI24	6,72568	15,47432	5,311	19	0,000	Sig.
Pair 7	ODIPRE - ODI48	15,61120	23,78880	10,084	19	0,000	Sig.
Pair 8	ODIPRE - ODI72	20,88863	31,31137	10,482	19	0,000	Sig.

Table 4. Descriptive Data on the Combination Treatment of Deep Tissue Massage and Stretching

Data	N	Range	Minimum	Maximum	Mean	Std. Deviation
VASPRE	20	52,00	30,00	82,00	63,8500	16,68997
VASPOST	20	31,00	20,00	51,00	35,2000	9,17433
FLEKSIPRE	20	3,40	4,00	7,40	5,5000	0,92167
FLEKSIPOST	20	3,50	4,50	8,00	6,3100	0,92617
EKSTENSIPRE	20	5,10	1,20	6,30	3,4250	1,24515
EKSTENSIPOST	20	5,00	2,70	7,70	4,3650	1,19661
DEKTRAPRE	20	17,40	30,60	48,00	43,6400	4,62822
DEKTRAPOST	20	16,00	30,00	46,00	39,9900	4,16690
SISNISTRAPRE	20	15,20	32,90	48,10	42,5400	4,35822
SINISTRAPOST	20	14,00	31,10	45,10	39,7200	3,75480
ODIPRE	20	26,00	46,00	72,00	57,9000	8,64444
ODI24	20	56,00	20,00	76,00	46,8000	13,25697
ODI48	20	34,00	18,00	52,00	38,2000	10,95253
ODI72	20	30,00	18,00	48,00	31,8000	9,53443

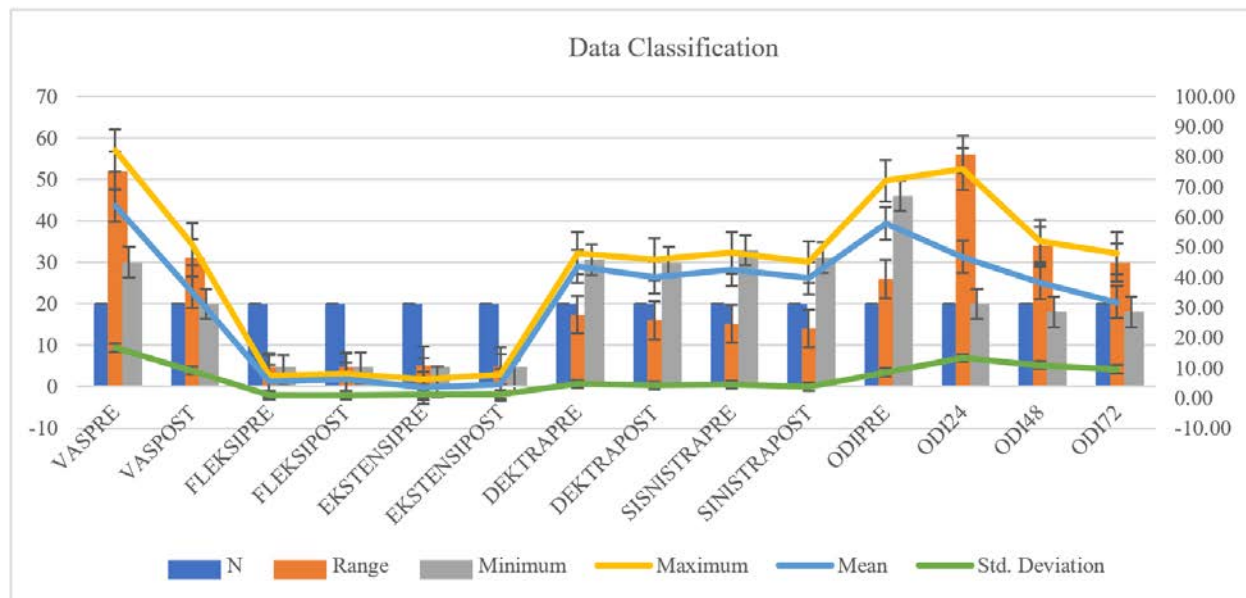


Figure 2. Pretest and Posttest Data Classification

4. Discussion

This study intends to demonstrate the value of stretching and deep tissue massage in the treatment of low back problems. The findings demonstrated a significant impact of deep tissue massage and stretching on the recovery of low back pain injuries. These findings also demonstrate that providing deep tissue massage therapy along with stretching is efficient in reducing discomfort, enhancing range of motion, and improving function in low back pain injuries. Prior relevant studies have demonstrated that deep tissue massage benefits patients with chronic low back pain injuries by lowering pain [35]. These findings were supported by earlier studies using therapeutic massage and deep tissue massage, both of which proved effective in treating chronic low back pain [36]. Research conducted by [37] showed that women recovering from surgery can find comfort and pain relief through deep tissue massage.

According to a study by Joseph, massage treatment combined with lumbopelvic stabilization exercises is more effective than normal massage therapy for treating low back pain [38]. Where low back injuries cause discomfort above the inferior gluteal crease and below the costal margin [16], [39]. As a result, several different treatments are used to address low back pain problems. According to the findings of other studies, back pain can be reduced and sagittal spinal alignment can be improved by massage treatment, segmental stretching, motor control exercises, and posture education [40]. Combining stretching exercises with traditional Thai massage can reduce pain and impairment and improve back flexibility [41]. Pregnant women who receive endorphin massages report feeling less anxious and experiencing less pain [42].

For reducing back discomfort, massage therapy and abdominal exercises work very well together [43]. Chinese massage therapy also serves as a foundation for the

treatment of persistent low back pain [11], and it comes out that massage is excellent in lowering low back pain among nursing staff who are employed in their profession [44]. Additionally, lumbar transforaminal epidural block therapy is effective in treating low back pain associated with radicular discomfort [43]. It was discovered that back massage therapy reduced injuries in those with low back pain [45]. Symptoms of low back pain can be successfully treated with therapeutic massage [46]. In accordance with additional studies, massage treatment combined with ultramagnetic therapy can lessen shoulder injury discomfort [47]. Next, it emerges that engaging in regular physical activity is advised for treating non-specific low back pain [48], and maintaining physical fitness [49]-[54], VO₂max [55], [56] can improve health [57], and gross motor [58].

5. Conclusions

The references from studies given earlier in the discussion of results and discussion provide a solid foundation for the research's findings regarding the use of deep tissue massage and stretching to treat low back pain. According to the study's findings, patients' recovery time from low back injuries is significantly slowed down when deep tissue massage and stretching are combined. This effect is strong when deep tissue massage and stretching are combined, as evidenced by the signs of discomfort, flexion, extension, right flexion, left flexion, and function. Based on the findings, this study has offered fresh support for treating patients' low back discomfort. These findings show that deep tissue massage and stretching are an efficient combination for treating low back pain. The effectiveness of deep tissue massage, stretching, and sports massage therapy in treating individuals with low back pain

injuries can be compared, according to research recommendations.

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