

# Pak Sartoyo

*by* rputrikasimbara 1

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# The Effect of Myofascial Release Technique On Low Back Pain Changes

Sartoyo<sup>1</sup> Rachma Putri Kasimbara<sup>2</sup> Ahmad Fariz<sup>3</sup>

<sup>1</sup>Physiotherapy, Institut Teknologi Sains dan Kesehatan of Malang, Malang, 02215, Malang, Indonesia  
<sup>2</sup>\*putrikasimbara@gmail.com

**Abstract** Purpose: This study is to determine the clinical efficacy of myofascial release technique to determine the most beneficial result-oriented physiotherapy method for the treatment of pain caused by low back pain. Method: This is a random controlled pre- and post-test experimental study using myofascial release technique. These techniques were compared using a convenient sample of 30 participants with back pain due to muscle cramps. At baseline (day 0), days 6 and 12 after the intervention, and during the follow-up period, the participants' pain due to back pain and low back pain was assessed using the digital pain score scale. The myofascial release technique is applicable to all groups. Repeated measures analysis of variance is used to analyze the data. Results: Analysis within the group showed that all variables were significantly improved (P<0.05). Conclusion: MFRT is equally effective in reducing the pain of non-specific low back pain. In addition, recommendations to promote pain relief can be used as an adjunct to physical therapy interventions to reduce low back pain and its symptoms. The combination of these manual treatment techniques may be a good treatment option for non-specific pain in a physical therapy clinic.

**Keywords** Myofascial Release technique, Low Back pain

## 1. Introduction

Low back pain (LBP) is a musculoskeletal and neuromuscular disease that affects the adult population. (1) Complaints of low back pain can focus on "What structure causes the pain?" The answer often presents a diagnostic dilemma. Until the question expands to "what process" leads to low back pain, for example, through pain-based neuroscience, situational cognitive-behavioral therapy, attention-based decompression, or biomechanics, but less attention to pathological anatomy. Therefore, it can also be said that low back pain is a contemporary neurophysiological pain model, distorting the perception of pain in different ways. (2) It is estimated that between 50% and 70% of each population complains of low back pain and half of them seek medical attention for their health. pain. (3) From 2005 to 2015, the "Global Burden of Disease" noted that the prevalence of chronic low back pain increased by 18.7% every three months, while the prevalence of patients with low back pain for more than three months increased by 17.5%. (4) Patients with complaints of low back pain often report impaired daily activities. The effects of pain often lead to hypotheses of restricted motor function and inability to perform activities of daily living, making them feel less physically active, which is reflected in the treatment of low back pain. Physical therapy is recommended to increase physical activity to aid recovery and reduce disability. (5)

Physiotherapy is a form of health service that aims to develop, maintain and restore movement and body throughout life for individuals and/or groups through manual operation, increased exercise, equipment (physical, electrotherapy, and machinery), functional training, and communication function. (6)

There are many physiotherapy methods that can be applied to patients with low back pain, namely; electrotherapy, manual therapy, exercise therapy and specific exercise therapy. Conservative physical therapy has led to the application of electrotherapy in the development of intervention management today. One of them is the application of infrared (IR) and transcutaneous (TENS) electrical nerve stimulation. (7) Similar to the application of manual therapy, focusing on reducing the pain caused by muscle spasms, it is a myofascial release technique. (8)

A study by Tozzi, P, et al. (2011) used dynamic ultrasound (USG) to study the pain and fascial mobility pain of 60 patients with non-specific neck pain (PN) and 60 patients with non-specific low back pain (LBP). By comparing the pain before and after MFR technology administration according to the pain area. The results show that MFRT can effectively relieve the impaired fascia displacement activity and improve the pain perception of patients with non-specific PN or LBP complaints. (9)

## 2. Materials and Methods

The purpose of this study is to determine the clinical efficacy of myofascial release technique, and to determine the most beneficial result-oriented physiotherapy method for the treatment of low back pain.

The raw data is the data directly collected by the researchers using measuring instruments. For the NPRS pain distribution test, the researchers provided advance understanding of the movement process. Using the pre-test and post-test research method, 30 male and female samples were randomly selected, aged between 35-65 years. A total sample of patients attending a physical therapy facility in a hospital. Dr. Soepraeon Malang, during December 2020, January 2021. Divided into two groups; A group is MFRT intervention 6 times physical therapy group and MFRT intervention 12 times physical therapy group. This study used the Digital Pain Scale (NPRS) measurement tool before and after 6 physical therapy interventions and 12 physical therapy interventions within 2 months. The study was based on the approval letter from the local ethics committee. After collecting the data, use the SPSS version 19.00 program to process and analyze the data, which uses univariate statistical testing to describe the normal distribution of the data distribution. This study uses the normality test. In order to see the correlation between the test variables used in this study, a paired t-test sample was used to conduct a bivariate analysis of normal data distributions. (9)

### 2.1. Myofascial Release Technique

MFRT is a manual treatment technique that applies gentle pressure while stretching the sore area of the muscle.

The patient sleeps on his back, comfortable and relaxed, with his torso and buttocks in a neutral position. The physical therapist puts one hand on the popliteal socket of the knee, fully bent, and the other hand on the sore muscle. The physical therapist then performs muscle stretching and then applies pressure after the stretched muscle exercise. He used MRT indirect technology to perform up to 45 sets (1 set of 90-120 seconds), lasting 510 minutes.

### 2.4. Result

Table 1. Nilai mean pre, post 6x dan 12 kali intervensi MFRT

	Mean	Significance
MFRT post 6x	5,9	0,001
MFRT post 12x	4,0	

Table 1 shows that both pre and post 6 times physiotherapy have a significant effect on reducing pain values in lowback pain patients. Both 6 times and 12 times the MFRT provision showed a significance value of 0.001.

### 2.5. Discuss

These results support the study of Arguisuelas and colleagues, who claim that myofascial release technology can significantly reduce pain and disability caused by low back pain. (11) Myofascial release technology uses mechanical pressure to reduce adhesions between tissues and muscle fiber tension. ... Applying pressure to the muscles and abdomen activates the autonomic nervous system by stimulating the type III and type IV interstitial nerve receptors that respond to light touch; it ends with Ruffini's fascia to reduce sympathetic nerve activity and increase gamma motor nerves Meta activity and relaxation of smooth muscle cells in the fascia to cope with stress. In addition, the pressure exerted by the physical therapist can reduce ischemia caused by increased blood circulation in the skin and muscles, reduce parasympathetic nerve activity and release relaxin and endorphins, remove metabolic waste products and provide oxygen. (12) Parasympathetic nerve stimulation changes serotonin, cortisol, endorphins and oxytocin, reducing pain. In addition, weakened parasympathetic reflexes can reduce the pressure on myofascial tissues by relaxing the tension on the smooth muscles of soft tissues, thereby reducing pain sensitivity. (13)

3. Another Cathcart study concluded that the myofascial release technique causes a biomechanical change in tissue elasticity, resulting in greater tissue flexibility. (12) This increase in tissue flexibility is related to the increase in joint movement area. In other words, by applying manual pressure, the sarcomere shortened due to excessive muscle contraction can be lengthened. The emergence of reactive hyperemia after the application of ischemic compression leads to an increase in oxygen supply, reducing inflammation and reducing the production of noxious and inflammatory substances, thereby repairing damaged muscle fibers and increasing muscle strength and flexibility. (11) Samani and his colleagues conducted a study on the management of myofascial release technique on 30 respondents who complained of low back pain and herniated nucleus pulposus, and compared traditional physical therapy interventions (TENS and ultrasound) with physical therapy interventions. Effect. Myofascial release technique. They concluded that myofascial release technique can effectively alleviate the back pain of intervertebral disc herniation. (13) Static force stretching that cannot relieve muscle spindle activation after 8 seconds will damage muscle spindle receptors and increase the risk of muscle strain or tear. The Golgi tendon organ (GTO) located in the tendon responds to changes in the tension in the muscle

4. . If the GTO detects that excessive muscle contraction may damage the related soft tissue structure, arousal will occur and cause relaxation or failure of contraction. GTO stimulation can block muscle spindles and cause muscle relaxation. This phenomenon is called spontaneous inhibition. If MFR technology is emphasized to stimulate GTO, self-inhibition can also occur. When the stimulus exceeds a certain stimulus threshold, it can inhibit muscle spindle activity and reduce spasm. (11)

## 5. Conclusion

AMFRT is also effective in reducing the pain of non-specific low back pain. In addition, recommendations to promote pain relief can be used as an adjunct to physical therapy interventions to reduce low back pain and its symptoms. The combination of these manual treatment techniques may be a good treatment option for non-specific pain in a physical therapy clinic.

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