# Medical Restorative Massage Therapy as a Novel Treatment for Chronic Low Back Pain: A Retrospective Study.

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**Abstract**

*Objective:*

To determine the efficacy of Medical Restorative Massage Therapy® (MRMT®), a multidisciplinary, therapeutic approach for the treatment of chronic low back pain (LBP).

*Design*

Retrospective study of data from chronic LBP patients treated with MRMT.

*Setting*

The M.T. Wellness Clinic, a licensed clinic providing MRMT service.

*Subjects*

143 adult patients (104F; 39M) treated at the M.T. Wellness Clinic from 2008 to 2012 for chronic LBP with ICD-9 codes 724.1-724.7.

*Main measures*

Data gathered included patient-reported pain level using an 11-point pain scale and a self-response questionnaire adapted from the Revised Fibromyalgia Impact Questionnaire to assess function level. Additionally, self-reported data on the use of medications and alternative forms of treatment for chronic LBP were

collected from patients who had been seen initially prior to 2010 and were still being treated in 2010.

*Results*

Following MRMT, patients self-reported a 40% decrease in pain. In addition, in 2011 a cohort of patients who had undergone MRMT as a treatment for LBP for more than one year reported an average increase of quality of life indicators of 23%, an 85% reduction in the use of other therapies, and of the patients who reported using prescription medication to treat their chronic LBP prior to MRMT, 50% discontinued using prescription medication after MRMT.

*Conclusion*

The results indicate that MRMT is an effective treatment option for patients with chronic LBP, achieving not only significantly reduced levels of pain and increased levels of function, but probable additional benefits relating to decreased prescription medication usage.

**Keywords**

Low back pain, complementary and alternative medicine, Medical Restorative Massage Therapy® (MRMT®)

**Introduction**

Chronic pain affects over 100 million Americans each year. Pain is known to affect both physical and mental function, and chronic pain, defined as lasting 3 months or more, can have a significant impact on a person's quality of life. Studies have shown the effect of chronic pain on direct and indirect medical costs, such as increased provider and hospital visits, absenteeism at work, and loss of productivity and concentration while at work. In 2005, adjusting for age and gender, the average healthcare cost per capita for people with low back pain (LBP) was $2,580, which was 73% higher than for people without LBP [1].

Low back pain is the second leading symptomatic cause for physician visits, the third most common reason for surgical procedures, and the fifth most common reason for hospitalization [2]. LBP is a prevalent, costly, and recurring problem; 4 out of 5 American adults will experience significant LBP. In a recent report from the U.S. National Center for Health Statistics, over 25% of adults reported LBP in the past three months [3].

Low back pain can be divided into three areas: spinal stenosis, disc displacement or herniation, and idiopathic. Idiopathic LBP comprises approximately 85% of all LBP cases. In most cases, pain resolves within a few weeks or months, with or without treatments. In about 8% of cases, pain lasts at least 3 months and about 5% of patients experience unremitting pain at 22 months. One-year recurrences are common, between 20-40%. The emerging picture for LBP is that of a chronic condition with acute exacerbation [2]. The view on which types of treatments are the most effective for low back pain has shifted in the last few years

[4-7]. Sending patients for expensive MRI scans and X-rays has been replaced with helping patients find pain relief through complementary and alternative medicine (CAM) techniques and physiotherapy. However, there is still a lot of controversy regarding the most effective of these methods in the treatment of LBP.

Here, we examine the relief of low back pain using Medical Restorative Massage Therapy® (MRMT®), which is a multidisciplinary treatment for chronic pain that combines elements of physical medicine, rehabilitation, and several massage modalities to reduce pain and restore physical function. The objective of this study is to assess the effect of using MRMT treatment techniques, which include analytical reasoning and a structured hands-on approach, to treat chronic LBP.

## Methods

*Study design and participants*

This study is a retrospective study of data collected from patients seen at the M.T. Wellness Clinic between 2008 and 2012. Patients had been diagnosed with chronic low back pain, within the ICD-9 codes 724.1-724.7, and were referred by various physicians to the M.T. Wellness Clinic for treatment with MRMT and/or medical massage. There were no inclusion/exclusion criteria other than the ICD-9 codes. An exemption of institutional review was obtained by the Office of Responsible Research Practices of the Human Research Protection Program at The Ohio State University (protocol #2014E0418) because this study involves pre-collected and de-identified data.

*Sample size*

162 patients were seen at the M.T. Wellness clinic for treatment of LBP between 2008 and 2012. Data were excluded from the analyses if they were from patients who were treated only one time (n = 19). Data from all other 143 patients (104F; 39M) were included (Table 1). The average age of the patients was 45 years (range: 19-77). Patient self-reported data on the use of medications and alternative forms of treatment for the treatment of LBP were collected from all patients who had been seen initially prior to 2010 and were still being treated in 2010 (n = 14). One patient from this subset was not included in this analysis as they did not respond to these questions.

*Therapists*

Seven Certified Medical Restorative Massage Therapists® (CMRMTs®) treated patients at the clinic during the years of this study. All therapists treating the patients had received standardized MRMT training and were licensed massage therapists within the state of Ohio.

*Interventions*

MRMT is a multidisciplinary treatment for chronic pain that combines several massage modalities with elements of physical medicine and rehabilitation (PM&R). The MRMT plan of care consists of four main components: 1) assessment of the patient at each visit, 2) manual, hands-on treatment for pain reduction and

restoration of physical function, 3) patient education and self-care, and 4) ongoing collaboration with the patient and the patient's health care team.

MRMT begins with an in-depth assessment of the patient before each treatment to identify the potential sources of the pain and to determine the progression of the patients within their treatment plan. The continual assessment process of the patients was adapted from the field of PM&R, and is a multiple-step process, consisting of six stages (OHIPAS): observation of the patient's general movement patterns and behaviors in response to any pain, history of the patient's health and previous injuries, inspection of the patient's posture and balance, palpation of the tissues to identify any abnormalities in texture, temperature, and tone, audit of the patient's ranges of motion, and specialized tests and screenings to pinpoint physical imbalances that may influence the patient's pain mechanically and to watch for any "red flag" symptoms which may indicate the presence of a serious medical condition that would warrant physician referral (night pain, positional neurologic symptoms, history of cancer, unintentional weight loss, etc.). This assessment will hereafter be referred to as the MRMT OHIPAS assessment protocol (Fig. 1). To both assess the patient's active range of motion (AROM) and to monitor for "red flags", 62 motions examining movement of the neck, shoulders, spine (trunk), hips, knees, and ankles were assessed (Fig. 2). A complete AROM assessment was performed even when the patients complained only of LBP since underlying factors elsewhere in the body can contribute to pain in the low back [8].

The information gained from the complete OHIPAS assessment helped the therapist focus on treating all problematic areas that potentially contributed to the

LBP. Pain reduction and restoration of physical function were done through various manual therapy approaches, which consisted of methods developed within PM&R, osteopathic medicine, chiropractic, and massage therapy disciplines (including neuromuscular, integrative, Kellogg's, and sports massage approaches). The types of manual therapy approaches used for each treatment depended on the outcome of the assessment and were always patient-tailored at each treatment session.

Each treatment was approximately 60 minutes in length and the frequency of the visits varied between the patients. The average number of treatment sessions per patient during the timeframe of the study was 10 (range = 2-60) (Table 1).

*Analysis and outcome measures*

Prior to each treatment, patients were asked to rate their pain on a scale of 0-10 using a scale modified from the Wong-Baker faces pain scale [9]. Outcome measurements for all patients were done before each treatment in the form of a self-response questionnaire adapted from the Revised Fibromyalgia Impact Questionnaire [10]. Quality of life was assessed from repeat patients with an initial visit to the clinic prior to 2010 and who had at least one visit during 2010 using a self-reported 5-point survey of 17 different physical activities, medication use, and utilization rates of alternative forms of treatments (physical therapy, acupuncture, chiropractic care, and traditional massage) (Fig. 3).

**Results**

For patients seen at the clinic with chronic LBP, 36% of patients reported having had LBP for more than five years. The mean initial pain rating of all patients using the 11-point pain scale at their first visit during the timeframe of the study was 5.8 +/-2.3. The mean initial pain rating at the final visit of each patient was 3.4 +/-2.1, which is a greater than 40% decrease in pain ($p<0.001$) using the same 11-point pain scale.

Different subsets of the population were analyzed to determine if a particular population of patients benefitted significantly more or less than the patient population as a whole. Both males and females reported a decrease in pain level, and this decrease was not significantly different between males and females ($p>0.5$) indicating that the change in reported pain level was not influenced by gender differences. There was a difference between the patient populations when they were separated by age groups (<40 vs. $\geq$40) with those $\geq$40 reporting a significantly larger decrease in pain between their initial and final visits ($p<0.05$). The subpopulation reporting the highest pain level at their initial visit was that of patients who had experienced pain for more than 5 years. Importantly, this population of patients also saw a significant decrease in their pain level (more than 3 points, $p<0.001$) and this decrease in pain was significantly larger ($p<0.05$) than the decrease in pain level reported by the subpopulation of patients who had experienced their pain for 3 months to 5 years.

A subset of patients (58%, n = 83) reported having received previous treatment for their back pain using other methods including traditional massage. Within this subset of patients, 63% (n = 52) reported that the other treatment

modalities had not improved their pain. For these 52 patients, the average decrease in pain during the timeframe of the study was 43% ($p<0.001$), similar to the entire population of patients with LBP. Patients who had previously tried other treatment modalities who had successfully decreased their pain reported only a 20% decrease in their pain with MRMT, although their change in pain level while they were undergoing MRMT was still statistically significant ($p<0.01$).

All repeat patients diagnosed with the ICD-9 codes of 724.1-724.7 who were still seen in 2010 were additionally asked to complete a self-reported 5-point survey of 17 different physical activities (Fig. 3) and were asked about their medication use and specifics of other forms of therapy they had used over the past two years or were currently using to treat their LBP (Table 3). Eight out of the thirteen respondents reported taking prescription medication to alleviate their pain and eight patients reported trying other forms of therapy (physical therapy, acupuncture, chiropractic care, traditional massage, or other therapy), with some patients trying more than one form of therapy to alleviate their pain. Following two years of MRMT treatment, this subpopulation reported a 59% reduction in utilization of medication, with 50% of patients discontinuing use of prescription medication to treat their LBP entirely, and an 85% reduction in use of other therapies. The two patients who reported continued use of traditional massage therapy specifically stated that it was for relaxation purposes only and not for treatment of their LBP.

**Discussion**

Numerous clinical studies have been performed to assess various aspects of massage therapy for a multitude of conditions. While massage therapy is a popular mode of treatment for LBP, its effectiveness is controversial [11]. A recent study by Cherkin, *et al.* in 2011 compared the effects of two types of massage (structural and relaxation) and usual care [12]. They found that either type of massage reduced pain and improved function for approximately six months, but the efficacy seemed to diminish at one year. They also reported that the type of massage did not seem to make a difference. However, in their study design, in the "structural massage" group a therapist could perform any type of myofascial, neuromuscular, and other soft-tissue techniques without any formal, structured assessment other than postural and palpatory assessment of tissues before, during, and after massage to determine a treatment protocol [12]. In this study, we saw a significant decrease in pain level using MRMT approaches for treatment. In a comparison between surgical and nonsurgical treatments of LBP, there was no significant difference between patient treatment groups and it was stated that due to risks and the financial costs that accompany any surgery, the nonsurgical approaches should be favored [13-14]. Having an effective manual therapy approach to treat LBP would abolish the need for many surgical interventions. We hypothesize that the in-depth assessment to determine all potential underlying causes of the LBP, with these findings in turn dictating the choice of treatment modalities employed, was the major reason that MRMT worked so well to reduce the pain reported by the patients. It will be important in the future to determine the degree to which the assessment and the types of manual approaches used contributed to the effectiveness of MRMT.

Finding a successful treatment for chronic LBP that is non-invasive benefits the patient in multiple ways. First, less medication for the patients means less potential side-effects/adverse effects due to the medications. Second, chronic pain is often associated with psychological stress. A link between psychological stress and back pain was suspected as early as the 1980's [15-17]. One of the commonalities among the different treatment plans proposed for LBP is the avoidance of bed rest. Keeping patients active and moving helps them heal faster. However, helping them feel well enough to move can be a physical and psychological challenge. MRMT overcomes both of these challenges by combining manual therapy with educating patients on self-care techniques that are acceptable to the patient. The patients surveyed in our study reported a significant decrease in their use of prescription medication for their LBP (Table 3).

The evidence that chronic low back pain treatment requires an individualized approach that is more patient-centered and less biomechanical is increasing [18]. MRMT was created with the idea that no single massage modality effectively treats all of the diverse pain and injury conditions presented by patients who suffer from chronic pain. The idea that manual therapy must address the patient as a whole, rather than being targeted to only the primary sites of pain, is not a new one [19]. Through a structured assessment a treatment plan can be chosen, tailoring treatment techniques used each treatment session to address the specific needs of each individual patient. The physiology of the injury can be matched with the physiological effects of the treatment technique, relying on a medical model adapted from PM&R. On average, patients diagnosed with LBP and

treated with MRMT reported a decrease in pain level of more than 2 points, which is more than the clinically significant difference determined for an 11-point pain scale [20]. This significant decrease in pain was seen in all subsets of patient populations regardless of patient age, gender, length of time the patients had been in pain, or whether the patient had previously tried other treatment modalities (Table 2). The significant decrease in pain seen not only in the population of patients as a whole, but also from patients who had previously tried other treatment modalities without success, shows that the MRMT method of treatment is a promising new method for the treatment of chronic pain. More importantly, the success of the MRMT method demonstrates that with continuous in-depth assessment and patient-tailored approaches, chronic low back pain can be effectively alleviated in a diverse group of patients using this approach.

**Clinical messages**

- This retrospective study demonstrates that MRMT is an effective, non-invasive treatment program for patients with chronic LBP.
- MRMT uses an in-depth assessment of the patient at each visit which allows the therapist to focus on treating all problematic areas that potentially contributed to the LBP.
- The multiple manual treatment modalities used by CMRMTs were tailored to the specific need(s) of each patient at the time of treatment.



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**Author contributions**

JRL contributed to the writing of the manuscript. DMG, JRL, KH, and TB performed the research. DMG, JRL, KH, and TB designed the assessment and study protocols.

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**Author Disclosure Statement**

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