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## Prevention and Rehabilitation

## Larger amplitude spinal mobilization is more effective to decrease pain systematically: A clinical trial using pressure pain thresholds in chronic low back pain participants



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## 1. Introduction

Low back pain (LBP) is characterized as pain and discomfort, localized below the costal margin and above the inferior gluteal fold, with or without referring to lower extremities (Russo et al., 2018). It is a prevalent form of musculoskeletal disorders (Ansari et al., 2019) and affects most people in terms of prevalence and disability. Along with neck pain, LBP is the 4th leading cause of disability worldwide (Vos et al., 2016) with a considerable economic burden to low-income and middle-income countries (Vos et al., 2016) (Hartvigsen et al., 2018). There are different insights into the categorization of LBP patients. Based on symptoms duration, acute back pain is defined as lasting less than 4 weeks, sub-acute back pain lasts 4–12 weeks, and chronic back pain persists more than 12 weeks (Qaseem et al., 2017). According to a practice-based observational study, both acute and chronic LBP patients reported considerable pain and disability until the 3rd and 4th years after the onset of symptoms (Haas et al., 2004).

About 90% of patients with chronic back pain are considered non-specific (chronic non-specific low back pain, CNSLBP) which means underlying cause(s) is not identified (Foster et al., 2018) (Krismer and Van Tulder, 2007). According to recent guidelines, treatment approaches in CNSLBP patients are: patient education - advice to be as active as possible, patient education - reassurance, prescription of nonsteroidal anti-inflammatory drugs (NSAIDs), opioids, antidepressants, muscle relaxants, using surgery, and implementing multidisciplinary rehabilitation programs (Oliveira et al., 2018). Osteopathic Manipulative Treatments (OMTs) are routinely used by clinicians in the rehabilitation teams (Oliveira et al., 2018). The American Osteopathic Association defines OMT as "The therapeutic application of manually guided forces by a clinician to improve physiologic function and/or support homeostasis that has been altered by somatic dysfunction" (Clearinghouse, 2016). Spinal mobilization is a type of OMTs frequently used in CNSLBP patients (Oliveira et al., 2018). It includes oscillatory, low-velocity movements applied within or at the limit of range of motions (Coulter et al., 2018) (Rubinstein et al., 2019). Recent systematic review studies recommend spinal mobilization as a plausible non-pharmacological therapy in chronic low back pain patients (Coulter et al., 2018) (Rubinstein et al., 2019).

Clinicians Use various doses of treatments, depending on the

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