

Effects of Different Parameters of Tai Chi on Chronic Low Back Pain

July 2024

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Acknowledgement

This tutorial is created based on the article, Effects of different parameters of Tai Chi on The intervention of chronic low back pain: A meta-analysis, published in July 2024 by the journal *Public Library of Science (PLOS) One*.


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About Chronic Low Back Pain (CLBP)

Chronic Low Back Pain (CLBP) refers to skeletal muscle pain that extends from the 12th rib to the hip fold for more than 3 months, with or without leg pain.



CLBP is a globally prevalent public health problem with some risk of disability.



Severe low back pain can lead to a significant reduction in quality of life and employment rates.

Tai Chi for CLBP: Investigating the Influencing Factors

A recent Chinese study evaluated the effects of Tai Chi in the treatment of patients with chronic low back pain by systematic review and investigated its influencing factors.

The study searched eight medical databases from inception to October 2023.

It summarized the existing evidence and analyzed the influence of Tai Chi on CLBP effect through intervention measures, styles and intervention times.

The outcomes of interest were pain intensity and disability.

The Benefits from Tai Chi for CLBP

- According to this study, evidence showed that Tai Chi can
 - reduce the pain degree of patients with low back pain
 - improve the lumbar disability
 - improve the level of physical and mental health
- And as a physical and mental exercise therapy, Tai Chi is a relatively safe choice for patients with low back pain.

Tai Chi Helps CLBP by Combining Multiple Forms of Training



Studies showed that Tai Chi and Baduanjin Qigong may have significantly improved the efficacy of CLBP by combining the substantive components (muscle strength, flexibility and stretching training) recommended by the American College of sports medicine (ACSM).



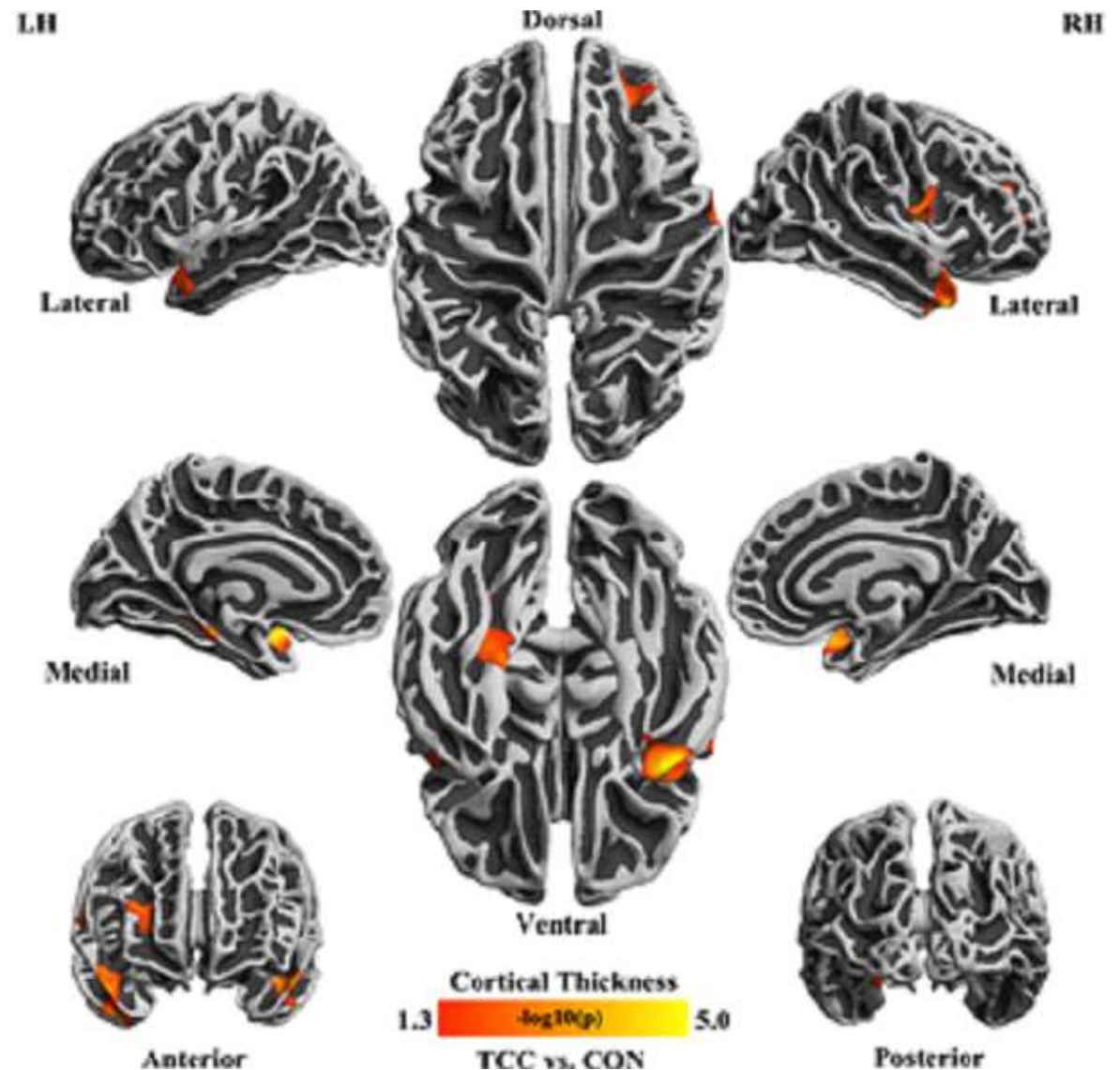
According to one study, by combining multiple forms of training for muscle strength, stability, static and dynamic balance, Tai Chi is very similar to core stability training.



Tai chi exercise can make the practitioner's muscle strength and bone density value increased significantly, promote its motor function, balance function improvement, so as to effectively improve the symptoms of low back pain.

Tai Chi Helps CLBP by Impacting Brain - I

- In the process of Tai Chi exercise, the action needs to be slow and controlled, and at the same time, the brain consciousness is adjusted through breathing and meditation.
- One systematic review believed that the reason why physical and mental movement affected pain perception and dysfunction levels may be attributed to changes in the central system. CNLBP patients are usually accompanied by abnormal connections between the structure and function of brain regions.



Tai Chi Helps CLBP by Impacting Brain - II



Regular Tai Chi exercise can induce regional structural changes in the precentral gyrus, insular sulcus, and middle frontal sulcus



Similarly, studies have proved that Tai Chi can affect brain waves in brain pain areas (parietal lobe and prefrontal lobe), and enable the brain to process the information related to pain more effectively.



Another study studied the neurobiological mechanism of pain perception and physical function after 8 weeks of Tai Chi intervention, and the results showed that Tai Chi intervention was moderately and highly correlated with the functional connection of amygdala medial prefrontal cortex.

Tai Chi Helps CLBP by Impacting Brain - III



In addition, a randomized controlled experiment found that Tai Chi can reduce pain catastrophization, that is, patients' exaggerated and negative thinking stereotype of pain caused by lumbar discomfort, which to some extent mediated the effect of Tai Chi on the pain degree of CNLBP patients.



The mechanism of CLBP is complex, and the therapeutic effect of Tai Chi intervention may also include a variety of responses regulated by sympathetic—parasympathetic nerve, nerve—endocrine—immune network, etc.



The results of this study showed that Tai Chi can significantly reduce the pain intensity of patients with low back pain.

Why Chen Style More Effective for CLBP Than Other Styles - I

The studies on the intervention of Tai Chi on low back pain have focused on the Chen and Yang schools.

The results of this study showed that there was no obvious difference in the curative effect between Yang's and Chen's.

Some studies believed that Chen Style was more powerful and flexible than that of Yang's in lower limb activities and had more obvious effects on lower limb nerve function of the elderly with lower back pain.

Why Chen Style More Effective for CLBP Than Other Styles - II



In fact, Chen Style can be divided into da jia and xiao jia, with two routines. The first routine: the twining force is obvious. The action requires paying attention to the movement of waist and abdomen muscles.



The characteristics of arc spiral can fully mobilize the waist muscles; Exercise requires the combination of movement and breathing, which can mobilize the diaphragm, transversus abdominis and other deep core muscle groups.



The second routine: Pao Chui is relatively powerful, with strong explosive force, many jumping movements and high exercise intensity, which is not suitable for the elderly and the weak.

Why Chen Style More Effective for CLBP Than Other Styles - III



Compared with Chen Style, Yang Style is gentler and more relaxed; it is characterized by firmness behind the gentle appearance, with no jumping and no vertical movement.



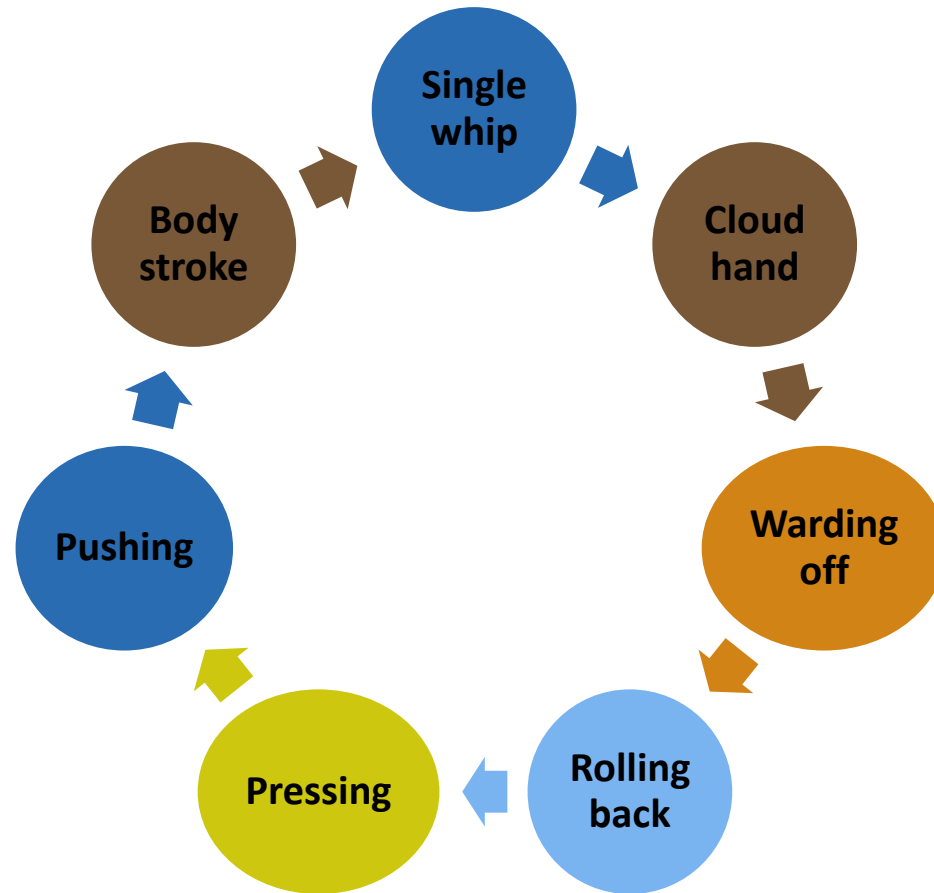
In addition, after learning about other schools of Tai Chi, we found that the He-Style Tai Chi is required to be natural and more coordinated, while Wu's Tai Chi is light in action and sensitive in footwork.



Although different styles of Tai Chi have their own characteristics, they all have the same thing that they all require quiet mind and soft body, relaxed and gentle, dynamic and static combination, coordinated and natural, and dominate the waist.


Tai Chi for CLBP: the Most Suitable Movements

Based on the state of CLBP patients, Tai Chi movements that require a certain degree of stability at the waist are suitable for these people. These movements include:




Tai Chi for CLBP: the Age and the Length Factors

The subgroup results of total interventions times showed that more than 30 times of Tai Chi exercises did not significantly improve the pain intensity of CLBP in patients compared with that of less than 30 times.



Previous studies have explored the effects of subject status and different training program elements (total intervention sessions, weekly intervention frequency, and single session duration), and have suggested that age and total practice time may be the main sources of intervention efficacy.



And intervention efficacy tended to decrease with age, but long-term practice significantly reduced pain severity.

It is important to note that during the practice of Tai Chi, the knee joint is often in a semi-bent state, and the knee may be subjected to high mechanical loads, which poses a risk of injury.

Therefore, if patients have insufficient knee stability, they need to pay attention to adjusting the exercise load appropriately.

Tai Chi for CLBP: Adjusting the Exercise Load



Conclusion

- This new systematic review found that Tai Chi had a positive effect on relieving pain intensity, functional impairment and quality of life in patients with CLBP.
- There was no significant difference between Chen Style Tai Chi and Yang's Tai Chi on the effect of CLBP intervention with both more than 30 times interventions or that of less than 30 times.

