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## Effectiveness Of Myofascial Release Technique To Decrease Spasticity in Cerebral Palsy Spastic Hemiplegia

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### Abstract:

**Background:** Spasticity is the most familiar syndromes in cerebral palsy children that is causing some painful spasm. Therefore, some studies suggest that Myofascial Release Technique is able to help the symptoms, in hope it can be able to give less spasticity on cerebral palsy spastic hemiplegia.

**Research objectives:** To find out the effect of Myofascial release technique on spasticity of cerebral palsy spastic hemiplegia children.

**Methodology:** Systematic review of three articles that related with myofascial release technique, cerebral palsy spastic hemiplegia, and spasticity on cerebral palsy spastic.

**Results:** Myofascial release technique can not to gives significant effect to decrease spasticity on cerebral palsy spastic hemiplegia, but it is able to support the other therapy and gives more significant decreasing spasticity along with another therapy.

**Conclusion:** Myofascial release technique is able to gives less spasticity along with other treatment rather than using myofascial release alone.

**Research contributions:** Hapsari Oktaviana Hariaji is the main researcher that selected the topic, wrote the paper, and collected data. Dhea Pritasya Nanda Melip searched, review study document, and collected data. Mianti Nurrizky Sutejo reviewed study document.

**Keywords:** Myofascial Release Technique, Cerebral Palsy, Spastic Hemiplegia

## INTRODUCTION

According to Vitrikas and Heather (2020), cerebral palsy affects movement, posture, and balance by a group of neurodevelopmental condition. This is everlasting and nonprogressive, but time may change the condition. Globally, 2 per 1000 births is estimated to be born with cerebral palsy. Predominant cerebral palsy syndromes including Spastic syndromes, dyskinetic syndromes, and ataxic syndrome. However, spastic syndromes are more often found than the others.

Spastic syndromes include: spastic diplegia, spastic quadriplegia, and spastic hemiplegia. Spastic hemiplegia is the one that typically affects arm more than legs. Anyhow, people with disfunction arm have less chance to be productive.

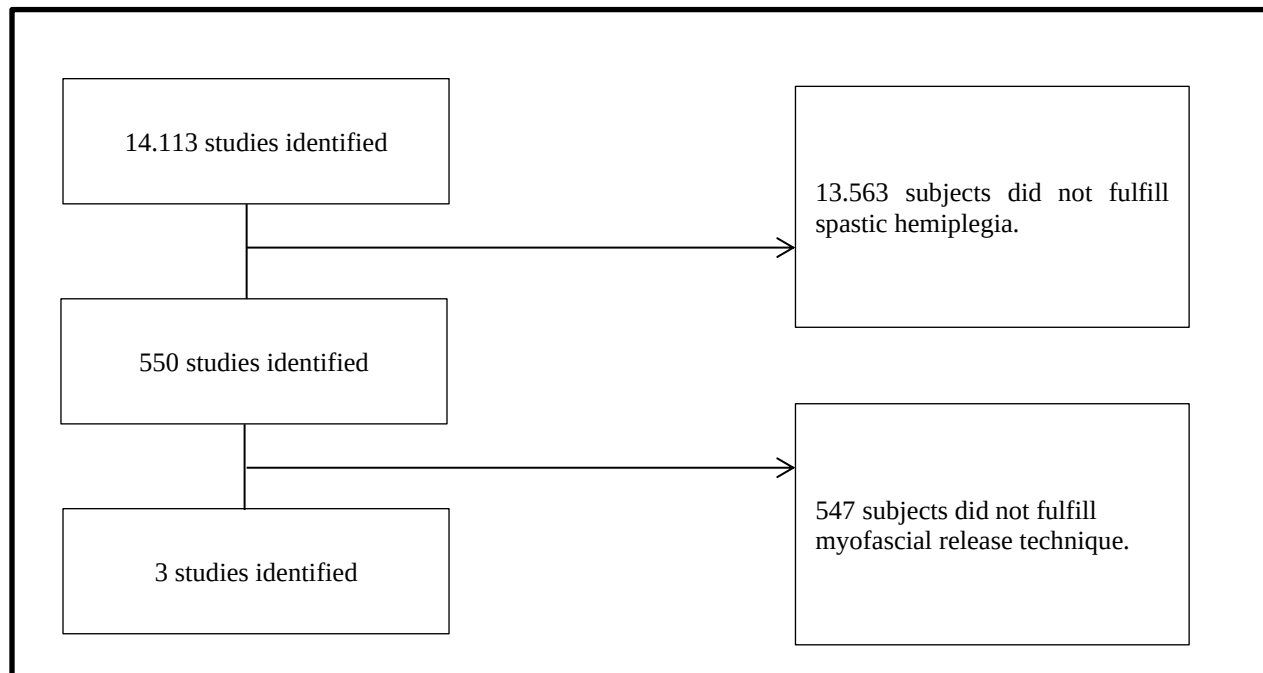
Spasticity is able to affect the whole body, however, is usually worse in the upper limb of unilateral involvement children. Spasticity is known as disturber of voluntary manage and to extend energy consumption throughout movement. One of the best way to decrease spasticism is massage therapy. According to Tiffany (2019), the pediatric massage therapy has proven effective for pregnancy and labor, psychological problems, movement disorders such as cerebral palsy and down syndrome, etc.

In recent years, the myofascial release technique (MFR) has been used for the rehabilitative treatment of musculoskeletal injuries such as neck pain, low back pain, scapulohumeral periarthritis, and functional instability of the ankle, as well as in clinical applications. (Chen, et. al. 2021). Myofascial release technique is expected to effect the spastic.



## METHODS

A thorough review was done on 3 topics: (1) Cerebral Palsy (2) Cerebral Palsy Spastic Hemiplegia (3) Myofascial Release Technique for Cerebral Palsy. The effective search was intentionally limited to English languages, with fascinating studies in pediatric patient and published in the completed last 10 years. The literature research was performed in the electronic databases PubMed, Physical Therapy Science and SciELO, for the period between January 2012 and January 2022. The keyword used, in different combinations, incorrectly were: "cerebral palsy", "cerebral palsyspastic hemiplegia", "cerebral palsyspastic myofascial release technique", "myofascial release technique", and "physiotherapy."



## RESULT AND DISCUSSION

A total of 3 relevant articles was properly selected and critically evaluated for their potential support (or comparative lack of active support) for study hypothesis (Myofascial Release Technique could represent an effective factor to decrease spasticity along with other specific factors) (Chart1). Included articles directly or indirectly indicated that myofascial release technique deficiency may be typically associated with decreasing cerebral palsy spasticity. However, no published study was typically found on myofascial release technique on Cerebral Palsy Spastic Hemiplegia.





| First author/ year                   | Type of study              | Sample     | Assessment and intervention                                                                                                                                                                                                                                                              | Clinical outcome                                                                                                                      | Significance |
|--------------------------------------|----------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|--------------|
| Bhattacharya, U. et. al. (2017)      | randomized sampling manner | 95 patient | Assessment : muscle tone and ankle range of motion (dorsiflexion) by goniometry<br>Intervention : administered at a rate of 5 repetition for each muscle group or joint with a hold of 20 – 60 sec. Each group received treatment at the rate of 6 days a week for a period of 12 weeks. | The finding show that there were difference in treatment with both MFR and PS, that PS have to be better than MFR in significant way. | P < 0.001    |
| Bhalara,Akta.Talsaniya,Dhaval (2014) | Experimental study         | 18 patient | Assessment : goniometry<br>Intervention : stretching and MFR given with 120 second of hold                                                                                                                                                                                               | stretching and MFR was giving more significant in reducing spasticity than stretching alone                                           | P < 0.0001   |
| Whisler,Sandra L. et al (2012)       | Case report                | 6 patient  | Assessment : The Modified Ashworth Scale of Spasticity<br>Intervention : massage therapy, training in myotherapy, as well as training in neuromuscular therapy, visceral/neuro therapy, and cranial-sacral therapy                                                                       |                                                                                                                                       |              |



Spastic hemiplegia children that have normal cognitive abilities, can maintain independent ambulation and a high level functional abilities. They have tendency to use one side of their body more than the other one, this habit leads asymmetrical neck and back. Many patients have motoric and sensoric disability that limits them to do daily activity such as reaching, holding, and moving object.

According to Bhattacharya, U. et. al. (2017), myofascial release technique is less effective than passive straching with p value < 0.001. However, the group of patients that have both therapy gives significant decrease in spasticity. So it can be inferred that myofascial release techniques is able to gives a better result as a spasticity decreaser along with another treatment. This statement is supported by Bhalara, A and Thalsaniya, D (2014) that their result showed about stretching and MFR was giving more effect, in reducing spasticity than stretching alone. MFR was proposed to work on neuroreflexive change. The hands on approach offers afferent stimulation through receptors, which require central processing at the spinal cord and cortical levels for a response. Afferent stimulation frequently results in efferent inhibition. This principal is used in MFR technique when the afferent stimulation of a stretch is applied and the operator waits for efferent inhibition to occur so that relaxation results.

According to Whisler (2012), the myofascial release technique could be an effective modality for cerebral palsy children because it is improve problems related to fascial strain, modify abnormal muscle tone, improve motor function, resulting in better motor function and potentially preventing fixed deformities. Base on the case series, myofascial release technique is able to decreasing muscle spasticity and being a treatment of certain behavioral problems that founded in cerebral palsy children.

## CONCLUSION

From all the result, we can conclude that myofascial releasing technique is able to gives a significant spasticity decreasing along with another treatment, such as passive straching, for children with cerebral palsy spastic hemiplegia.

## AUTHOR CONTRIBUTION

Hapsari Oktaviana Hariaji is the main researcher that selected the topic, wrote the paper, and collected data. Dhea Pritasya Nanda Melip searched, review study document, and collected data. Mianti Nurriszky Sutejo reviewed study document.

## CONFLICT OF INTEREST

There are no conflicts of interest.

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