



# EFFECTIVENESS OF KINESIOLOGY TAPING WITH MUSCLE ENERGY TECHNIQUE VERSUS CODMAN'S PENDULAR EXERCISES WITH INTERFERENTIAL THERAPY IN PATIENTS WITH SHOULDER IMPINGEMENT SYNDROME.

BABY CAROLIN.K <sup>1</sup>

VENKATA KRISHNAN. M <sup>2</sup>

<sup>1</sup> Associate Professor: Adhiparasakthi College of Physiotherapy, Melmaruvathur Adhiparasakthi Institute of Medical Sciences and Research, Melmaruvathur, Chengalpattu 603203, Tamilnadu, India.

<sup>2</sup> Under Graduate Student, Adhiparasakthi College of Physiotherapy, Melmaruvathur Adhiparasakthi Institute of Medical Sciences and Research Melmaruvathur, Cengalpattu 603203, Tamilnadu, India.

## ABSTRACT

**BACK GROUND:** Impingement is pathological compression of rotator cuff against the anterior structure of coracoacromial arch anterior 1/3<sup>rd</sup> acromion, Coroco-acromial ligament. AC joint progression of syndrome is defined by narrowing of sub-acromial outlet by spur formation in coracoacromial ligament and undersurface. Kinesiological taping is commonly used to improve symptoms associated with musculoskeletal disorder and Muscle energy technique also helps to reduce pain and disability. The shoulder range of motion is assessed by using goniometer and SPADI scale. This association will be helpful in determining the effect of kinesiology taping and muscle energy technique to reduce pain and disabilities in shoulder impingement syndrome.

**OBJECTIVE:** To find out the effectiveness of kinesiology taping with muscle energy technique versus codman's pendular exercises with interferential therapy in patients with shoulder impingement syndrome.

**METHODOLOGY:** 30 subjects with shoulder impingement syndrome were randomized into two groups according to inclusion and exclusion criteria.

- Group A patients are treated with kinesiology taping with muscle energy technique (MET), duration 12 sessions for 4 weeks.
- Group B all treated with codman's pendulum exercise with Interferential therapy duration of 12 sessions for 4 weeks

The pain and disability is measured by shoulder pain and disability index (SPADI Scale) and the range of motion was assessed by Goniometer for both groups.

**OUTCOME MEASURES:** SPADI Scale, Goniometer

**RESULT:** Statistically analysis was done, the comparative study between two groups is significant at the level of 0.01.

**CONCLUSION:** The study concludes that Kinesiology taping with muscle energy technique has a significant effect in relieving pain and increasing range of motion as compared to treatment with Codman's pendular exercise with interferential therapy.

**KEYWORDS:** Shoulder impingement syndrome, Shoulder Pain Disability Index (SPADI)

## **EFFECTIVENESS OF KINESIOLOGY TAPING WITH MUSCLE ENERGY TECHNIQUE VERSUS CODMAN'S PENDULAR EXERCISES WITH INTERFERENTIAL THERAPY IN PATIENTS WITH SHOULDER IMPINGEMENT SYNDROME.**

### **INTRODUCTION**

Shoulder pain is a common musculoskeletal complaint in today's societies. Previous authors have indicated that lifetime prevalence of shoulder pain ranged from 7% to 36% of the population. [1] shoulder impingement syndrome (SIS) is the most common shoulder complaint in individuals attending orthopedic and physical therapy clinics (44-65%) several facts, based on clinical findings and scientific experiments, have been associated with the development of SIS. Investigators have attributed subacromial impingement to various factors, such as anatomic morphology, overuse, and instability of the glenohumeral joint. Moreover, investigators have

focused on the role of scapular control in SIS. Multiple theories have been proposed to explain the etiology of shoulder impingement including anatomical abnormalities, tension overload in the rotator cuff muscles. [2]

Kinesiology taping helps to reduce pain and disability in patients with shoulder pathology. Several studies on kinesiology taping to treat shoulder impingement syndrome. Muscle energy technique are the form of osteopathic

manipulation and treatment in the patient muscles are actively used on request from a precisely controlled position a specific direction and against a distantly applied counterforce. [3]

## **MATERIALS AND METHODS ;**

An Experimental study with a convenient sampling method was conducted among the two groups of peoples at Adhiparasakthi college of physiotherapy and MAPIMS prior to the study, Departmental Ethical committee approval was obtained.

**PARTICIPANTS;** The study treated with two groups, for each group  $N \approx 15$  Age group between 25 to 50 years of both genders are taken for study.

The survey instrument used in this study was SPADI scale and Goniometer.

## **PROCEDURE;**

The subjects were based on the inclusion and exclusion criteria and the complete procedure of the study was clearly explained to the subjects. The informed consent was obtained from them.

The demographic data of the subjects was also collected enquiring about subjects age, gender, history of medical illness.

30 subjects were selected and divided into group A and group B with 15 subjects in each group. group A were treated with kinesiology taping and muscle energy technique and group B were treated with codman's pendular exercise with interferential therapy.

The groups (A,B) were assessed by using special test Neer impingement test, Hawkins Kennedy test. [4]

Then, Pre test and post test assessment were done for both groups and the value of Shoulder Pain and Disability Index (SPADI) are measured. [5]

## **RESULTS**

According to TABLE 1 (GROUP A) the mean value of kinesiology taping with muscle energy technique are 51.8667

The standard Deviation of kinesiology taping with muscle energy tapping are 4.05087

According to TABLE 2 (GROUP B) the mean value of codman's pendular exercise with interferential therapy are 65.8000

The standard deviation of Codman's Pendular exercise with interferential therapy are 5.41427

## **DEMOGRAPHIC CHARACTERISTICS**

The total number of patients in the study were 30.

**TABLE 1****Paired Samples Statistics**

KTMET Group-A		Mean	N	Std. Deviation	d. Error Mean
Pair 1	Pretest	81.8667	15	2.87518	.74237
	Posttest	51.8667	15	4.05087	1.04593

KTMET Group-A		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	d. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pretest - Posttest	30.000	4.69042	1.21106	27.40253	32.59747	24.772	14	.000

**TABLE 2**

CPEIT Group-B		Mean	N	Std. Deviation	d. Error Mean
Pair 1	Pretest	83.7333	15	3.93640	1.01637
	Posttest	65.8000	15	5.41427	1.39796

**Paired Samples Test**

CPEIT Group-B		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	d. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pretest - Posttest	17.9333	5.87326	1.51647	14.68083	21.18584	11.826	14	.000

## DISCUSSION

Shoulder impingement is very common musculoskeletal complaints and individuals with shoulder pain comprises a significant percentage of patients seeking attention. Rotator cuff pathology and shoulder impingement are the most common diagnosis in the shoulder region, which is common complaints for people of all age groups and different activity levels.

Multiple theories have been proposed to explain etiology of shoulder impingement including tension overload in shoulder muscles.

Kaya et al [6] found that while treating SIS patients with KT and local modalities, found that immediate effect of KT is seen. They suggested KT is an alternating treatment option in management of SIS.

Host H (1995) [7] various taping approaches have been adapted to be used clinically for the patients with shoulder problems. Taping is an adjunct treatment option during rehabilitation programs; the application of the scapular taping used in conjunction with a home exercise program was shown to improve shoulder pain and ROM.

Vinoth P (2018) Found that application of muscle energy with shoulder range of motion exercise shows clinical and statistical improvement in the out of pain and range of motion in subjects suffering from shoulder stiffness and pain.

Parvaneh Jalilipana (2019) [8] they found that application of muscle energy technique to patients with shoulder impingement syndrome helps to reduce pain and increase range of motion.

The study concludes that Kinesiology taping with muscle energy technique has a significant effect in relieving pain and increasing range of motion as compared to treatment with Codman's pendular exercise with interferential therapy.

### LIMITATIONS AND RECOMMENDATIONS

#### LIMITATIONS

The smaller sample size for the study

The duration of study was short

Only one scales are used for the study

#### RECOMMENDATION

The future study must consider an equal proportion of male and female participants.

Use of more sampling for the research purpose.

Use of alternating techniques for more reliability.

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**CONFLICT OF INTEREST:** Nil

**SOURCE OF FUNDING:** Self Fund

**STATEMENT OF INFORMED CONSENT:** We hear by declaring that we have abided by the rules and guidelines of this journal and not disclosed the information which could affect the privacy of the participants.

**ETHICAL CLEARANCE: Experimental study-** Taken from Melmaruvathur Adhiparasakthi Institute of Medical Science and Research.

## REFERENCES

- [1] H. Shakeri, *Shakeri H, Keshavarz R, Arab AM, Ebrahimi I. Clinical effectiveness of kinesiological taping on pain and pain-free shoulder range of motion in patients with shoulder impingement syndrome: a randomized, double blinded, placebo-controlled trial. Int J Sport*, p. 801, december 2013.
- [2] E. Kaya, *Kaya E, Zinnuroglu M, Tugcu I. Kinesio taping compared to physical therapy modalities for the treatment of shoulder impingement syndrome. Clin Rheumatol. 2011 Feb;30(2):201-7. doi: 10.1007/s10067-010-1475-6. Epub 2010 Apr 30. PMID: 20443039*, april 2010.
- [3] L. Chaitow, *Chaitow L, Crenshaw K. Muscle energy techniques. Elsevier Health Sciences; 2006.*, 2006.
- [4] P. B. MacDONALD, *MacDonald PB, Clark P, Sutherland K. An analysis of the diagnostic accuracy of the Hawkins and Neer subacromial impingement signs. J Shoulder Elbow Surg. 2000 Jul-Aug;9(4):299-301. doi: 10.1067/mse.2000.106918. PMID: 10979525*, 2000.
- [5] H. D. Williams JW, *Williams Jr JW, Holleman Jr DR, Simel D. Measuring shoulder function with the Shoulder Pain and Disability Index. The Journal of rheumatology. 1995 Apr 1;22(4):727-32.*, 1995.
- [6] K. e. al, *Kaya E, Zinnuroglu M, Tugcu I. Kinesio taping compared to physical therapy modalities for the treatment of shoulder impingement syndrome. Clin Rheumatol. 2011; 30: 201-207*, 2011.
- [7] Helen H Host, *Scapular Taping in the Treatment of Anterior Shoulder Impingement, Physical Therapy*, Volume 75, Issue 9, 1 September 1995, Pages 803–812
- [8] Jalili Panah P, *Okhovatian F, Serri RA, Baghban AA, Zamani S. The effect of dry needling & muscle energy technique separately and in combination in patients suffering shoulder impingement syndrome and active trigger points of infraspinatus. J Bodyw Mov Ther. 2021 Apr*