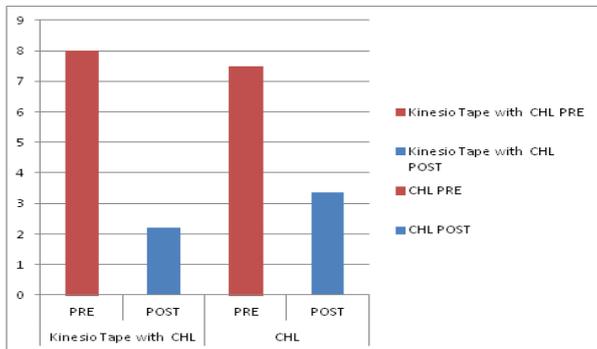


Shankar et.al/Efficacy of kinesiotaping as an adjunct to positional stretching of coracohumeral ligaments in patients with primary adhesive capsulitis.



Pre and post values of VAS both groups

TABLE 7 Inter and Intra subject analysis of DASH

GROUP		Mean	Std. Deviation	N
DASHPRE	Kinesio tape	42.8500	9.33739	20
	CHL stretch	44.0000	9.41443	20
	Total	43.4250	9.27331	40
DASHPOST	Kinesio tape	12.4000	5.12373	20
	CHL stretch	21.2500	5.74800	20
	Total	16.8250	6.99776	40

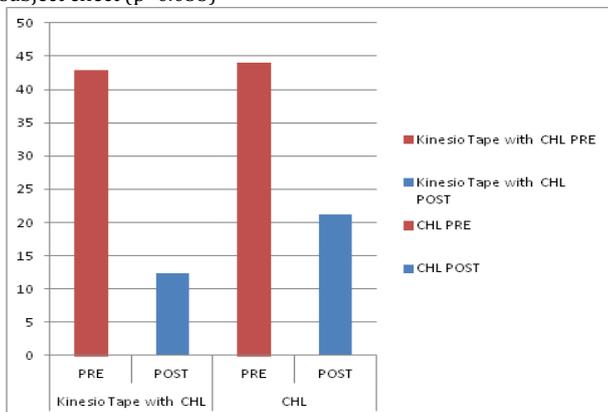
Tests of Within-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
CHANGE	14151.200	1	14151.200	928.188	.000
CHANGE GROUP	296.450	1	296.450	19.444	.000
Error(CHANGE)	579.350	38	15.246		

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Intercept	72601.250	1	72601.250	709.626	.000
GROUP	500.000	1	500.000	4.887	.033
Error	3887.750	38	102.309		

Results of the study shown significant improvement in DASH with significant difference within the subjects ($p < 0.000$) and between the subject effect ($p < 0.033$)



Pre and post values of DASH score in both groups

TABLE 8 The pre and post measurements of scapular level with respect to T7 level in both PSCHL with KT and only PSCHL groups.

PSCHL with KT	
Pre(cms)	Post(cms)
11	9
9	7
10	8
8	7
10	8
11	9
8	7
9	7
10	8
8	7
11	9
12	10
10	8
9	7
10	9
8	7

ONLY PSCHL groups.	
Pre(cms)	Post(cms)
11	10
10	9
9	8
8	8
10	9
12	11
11	10
10	9
8	8
7	7
9	8
11	10
10	9
9	8
11	10
8	8

7	6
10	8
9	7
11	9

7	7
9	8
10	9
11	10

REFERENCES

- Yang JI, Chang C, Chen S, Wang S, Lin J. Mobilization techniques in subjects with frozen shoulder: Randomized multiple treatment trial. *Physical Therapy*. 2007; 87:1307-1315.
- Cleland J and Durall CJ 'Physical Therapy For Adhesive capsulitis' Systemic review, *physiotherapy*, 88, 8, 450-457.
- Neviasser J S. adhesive capsulitis of the shoulder A study of the pathological findings in periarthrosis of the shoulder j bone joint surg1945;27:211-22
- Depalma AF: surgery of the shoulder. JB Lippincott, Philadelphia, 1983
- Lundberg BJ: glycosaminoglycans of the normal and frozen shoulder-joint capsule. *Clin Orthop* 69:279, 1970
- Ozaki J, Nakagawa Y, Sakurai G et al: Recalcitrant Chronic Adhesive Capsulitis of the Shoulder"; *The Journal of Bone and Joint Surgery*; Dec 1989: Vol; 71A; No.10, Pg; 1511-1515.
- Neer CS, Satterlee CC, Dalsey RM et al: On the value of coracohumeral ligament release. *Orthop Trans* 13:235, 1989.
- Kieras DM, Masten FA: Open release of refractory frozen shoulder. *Orthop Trans* 15:801, 1991.
- Desai S. Diabetes mellitus and the frozen shoulder or capsular Thbroplasias: The mystery unfolding. *Int J Diab Dev Countries*. 1999 Accessed February 10, 2008.
- Schwartz RE, O'brien SJ, warren RF, torzilli PA. Anatomy and histology of the inferior glenohumeral ligament complex; *American Ortho Soc for Sports Medicine*, Las Vegas 1989.
- Mengiardi B, Pfirrmann C, Gerber C, Hodler J, Zanetti M. Frozen shoulder: MRI arthrograph findings. *Radiology*. 2004; 233:486-492.
- Omari A, Bunker TD. Open surgical release for frozen shoulder: Surgical findings and results of the release. *Journal of Shoulder Elbow Surgery*. 2001; 10:353-357.
- WARWICK r, Williams P(eds): *Grays Anatomy*, ed 35. London, England, Longman Group Ltd, 1973.
- Moore KL, *Clinically Oriented Anatomy*. Baltimore, MD, Williams and Wilkins, 1980.
- McClure P, Flowers K. Treatment of limited shoulder motion: "A case study based on biomechanical considerations". *Physical Therapy*. 1992; 72:97-104.
- Vermeulen H, Rozing P, Oberman W, Cessie S, Vlieland T. "Comparison of high-grade and low-grade mobilization techniques in the management of adhesive capsulitis of the shoulder" *Randomized controlled trial*. *Physical Therapy*. 2006; 86:355-368.
- Jose Orlando Ruiz 'positional stretching of the coracohumeral ligament on a patient with adhesive capsulitis' *Journal of Manual Therapy and manipulative therapy*, 2009; 17(1):58-63.
- Brad Walker, 'Stretching and Flexibility Defined. What is stretching? What is flexibility? And how do we define the different types of stretching and flexibility?' April 2007.
- Fayad F, Roby-Brami A, Yazbeck C, et al. "Three dimensional scapular kinematics and scapulohumeral

- rhythm in patients with glenohumeral osteoarthritis or frozen shoulder". *Journal of Biomechanics*. 2008. pp. 326-332.
20. Rundquist PJ. Alterations in scapular Kinematics in subjects with idiopathic loss of shoulder range of motion. *Journal of Orthopaedic Sports Physical Therapy*. 2007. pp. 19-25.
 21. Vermeulen HM, Stokdijk M, Eilers PH, Meskers CG, Rozing PM, Vliet Vlieland TP. "Measurement of three dimensional shoulder movement patterns with an electromagnetic tracking device in patients with a frozen shoulder". *Ann Rheum Dis*. 2002; 61:115-120.
 22. Lin JJ, Lim HK, Yang JL. "Effect of shoulder tightness on glenohumeral translation, scapular kinematics, and scapulohumeral rhythm in subjects with stiff shoulders". *Journal Orthopaedic Res*. 2006. pp. 1041-1051.
 23. Michener LA, McClure PW, Karduna AR. Anatomical and biomechanical mechanisms of subacromial impingement syndrome. *Clin Biomech (Bristol, Avon)* 2003;18:369-379.
 24. Lin JJ, Hanten WP, Olson SL, et al. Functional activity characteristics of individuals with shoulder dysfunctions. *Journal of Electromyography Kinesiology*. 2005. pp. 576-586.
 25. Ludewig PM, Cook TM. Alterations in shoulder kinematics and associated muscle activity in people with symptoms of shoulder impingement. *Physical Therapy*. 2000; 80:276-291.
 26. Fey AJ, Dorn CS, Busch BP, Laux LA, Hassett DR, Ludewig PM. Potential torque Capabilities of the trapezius [abstract] *Journal Orthopaedic Sports Physical Therapy*. 2007; 37:A44-A45.
 27. Johnson G, Bogduk N, Nowitzke A, House D. Anatomy and actions of the trapezius muscle. *Clinical Biomechanis (Bristol, Avon)* 1994; 9:44-50.
 28. Scovazzo ML, Browne A, Pink M, Jobe FW, Kerrigan J. "The painful shoulder during freestyle swimming. An electromyography cinematographic analysis of twelve muscles". *American Journal of Sports Medicine*. 1991; 19:577-582.
 29. Lin JJ, Wu YT, Wang SF, Chen SY. Trapezius muscle imbalance in individuals suffering from frozen shoulder syndrome. *Clinical Rheumatology*. 2005. pp. 569-575.
 30. R Mac Donald taping technique principals and practice. Edited By Rose Mac Donald; Page 6.
 31. B. Kumbrink, K Taping Springer- 2012.
 32. Mark D Thelen, James A Dauber, Paul D Stoneman. "The clinical efficacy of kinesio tape for shoulder pain". *Journal of Orthopaedic and Sports Physical Therapy*. Vol 38, number 7, July 2008 page 389-395.
 33. Krkan Kaya, Murat Zinnuroglu, Ilknur Tugcu; "Kinesio Taping Compared to Physical Therapy Modalities for the Treatment of Shoulder Impingement syndrome"; *Clinical Rheumatology* 2010.
 34. Rob Brandon, Lisa Paradiso; "The use of Kinesio tape In Patients Diagnosed with Patellofemoral Pain'2005.
 35. Vithoulka, A Beneka; "The Effect Of Kinesio Taping On Quadriceps Strength During Isokinetic Exercise in Healthy Non Athlete Women" Department Of Physical Education And Sports.
 36. Diana j osterhues "The effect of kinesio taping in the management of traumatic patelle dislocation. A case study" *physiotherapy theory and practice*, 20; 267-270, 2004.
 37. Mc Connell, Jenny, McIntosh "The effect of tape on glenohumeral rotation range of motion in elite junior tennis players".
 38. Wen-chi chen, Wei-Hsien Hong, Tien Fen Huang, Horng-Chaung Hus "Effects of kinesio taping on the timing and ratio of vastus medialis obliquus and vastus lateralis muscle for person with patellofemoral pain" department of sports medicine, Taiwan.
 39. Melissa Schneider, Matthew Rhea, Curtus bay " The effect of kinesio tex tape on muscular strength of the forearn extension on collegiate tennis athletes".
 40. Anne M Boonstra, Henrica R Schiphorst Preuper et al *International Journal of Rehabilitation Research: June 2008 - Volume 31 - Issue 2 - pp 165-169 (2008)*
 41. Riddle DL, Rothstien JM, lamb RL. Goniometric reliability in clinical setting Shoulder measurements. *Phys ther*. 1987 May; 67(5):667.
 42. Kenzo Kase, Jim Walls, Ts'uyoshikase. 'Clinical Therapeutic Application of the Kinesio Taping Method' Second Edition; page no; 54-55&67.
 43. Davies G, Ellenbecker T. Rehabilitation: Focused exercise aids shoulder hypomobility. *Biomechanics*. Accessed January 23, 2008.
 44. Feland J, Myrer J, Schultries S, Fellingham G, Measom G. The effect of duration of stretching of the hamstring muscle group for increasing range of motion in people aged 65 years or older. *Phys Ther*. 2001;81:1110-1117.
 45. Hepburn G. Case studies: Contracture and stiff joint management with dynasplint. Accessed March 10, 2008.
 46. Borich MR, Bright JM, Lorello DJ, Cieminski CJ, Buisman T, Ludewig PM. Scapular angular positioning at end range internal rotation in cases of glenohumeral internal rotation deficit. *J Orthop Sports Phys Ther*. 2006. pp. 926-934.
 47. Borstad JD, Ludewig PM. The effect of long versus short pectoralis minor resting length on scapular kinematics in healthy individuals. *J Orthop Sports Phys Ther*. 2005. pp. 227-238.
 48. Kibler WB. The role of the scapula in athletic shoulder function. *Am J Sports Med*. 1998;26:325-337.
 49. Ebaugh DD, McClure PW, Karduna AR. Effects of shoulder muscle fatigue caused by repetitive overhead activities on scapulothoracic and glenohumeral kinematics. *J Electromyogr Kinesiol*. 2006. pp. 224-235.
 50. McQuade KJ, Dawson J, Smidt GL. Scapulothoracic muscle fatigue associated with alterations in scapulohumeral rhythm kinematics during maximum resistive shoulder elevation. *J Orthop Sports Phys Ther*. 1998;28:74-80.
 51. Kebaetse M, McClure P, Pratt NA. Thoracic position effect on shoulder range of motion, strength, and three-dimensional scapular kinematics. *Arch Phys Med Rehabil*. 1999;80:945-950.
 52. Culham E, Peat M. Functional anatomy of the shoulder complex. *J Orthop Sports Phys Ther*. 1993;18:342-350.