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**ORIGINAL ARTICLE**

# Effects of Medial-Lateral Glide Versus Radius Anterior Glide in patients with Lateral Epicondylistis

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## ABSTRACT

**Aim:** To Compare Ulnar Medial Lateral Glide and Radius Anterior Glide for Improving Lateral epicondyle tendinopathy.
**Study design:** Randomized Clinical Trial
**Methods:** Data was taken through Non-Probability Convenience Sampling Technique. Subjects with nonspecific lateral epicondyle tendinopathy were randomly allocated to 2 groups; one taking medial lateral glide, other anterior radial glide. Baseline, after-treatment two readings were taken through Numeric Rating Pain Scale and lateral epicondyle tendinopathy symptoms. Data was analyzed through Statistical Package for Social Sciences 25.00.
**Results:** The findings showed between group comparisons at 1streading for lateral epicondylitis. The p value was 0.896 showing no statistically significant difference in effects of both treatments. P value 0.929 verifies this fact. The average difference that found was 0.0757. The p value was 0.907 showing statistically significant difference in effects of both treatments.P value 0.819 verifies the fact too. The average difference found to be 0.7926. Furthermore, the findings showed between group comparisons of. Average difference at pre-treatment and 1stafter treatment reading, pre-treatment and second after treatment reading, pre-treatment and third after treatment reading were 0.831, 0.02 and 0.00 respectively.
**Conclusion:** The study concluded that there was no significant different in outcomes of medial lateral glide and anterior radial glide in improving tendinopathy in lateral epicondylitis
**Keywords:** Anterior Radial Glide, Medial Lateral Glide, Lateral Epicondylitis, Tendinopathy, Tennis Elbow

## INTRODUCTION

Lateral epicondylitis or term “tennis elbow,” is a often reported disorder in health care. The patient is described by pain over the lateral side of epicondyle of humerus that aggravates with dorsiflexion at wrist against resistance. The rate in general practice is about 4 to 7 per 1000 persons per with annual incidence of 1% to 3% in the general people[1,2].

Pain is the essential cause behind patients to look for medicinal reading. The pain is situated over the outside part of the elbow, over the bone area known as the lateral epicondyle. This range winds up plainly delicate to touch. Pain or discomfort is additionally created by any movement which places weight on the ligament, for example, grasping or lifting[3].

The reason can be both non-work and business related. A movement that put weight on the ligament junctions, through weight on the extensor muscle-ligament unit, builds the strain on the ligament. These burdens can be from holding too expansive a racquet hold or from "redundant" grasping and getting a handle on exercises, i.e. meat-cutting, pipes, painting, and weaving, and so on[4,5].

Be that as it may, this may create a condition of muscle guarding in like manner extensor ligament driving surprising stretch power on sidelong epicondylitis. Along these lines the hard structure gets included. As the hard structure gets included, it prompts excited epicondyle. Excited epicondyle consequently influence its connection i.e. regular extensor ligament source[6].

Numerous treatmental administration choices incorporate physical operators and modalities including ultrasonic treatment, infra red radiation, laser treatment, cryotherapy, electrical incitement, transcutaneous electrical nerve stimulator thus. Traditional non-intrusive treatment incorporate modalities alongside exercise such isometric activities, numerous edge isometric activities, erratic stacking, tennis elbow propping, rest, ice treatment and adjustment work mechanics[7].

Propelled treatments incorporate assembly and manipulative strategies. There are other rundown of treatments yet less verified. For example, lateral skim of ulna or average coast of ulna, foremost float of sweep or outspread float of range. Different methods incorporate assembly with development that level headed discussions on disturbances of hard parts, for example, spiral segments. They argue to enhance the condition with reestablishing the hard relationship of hard accomplices. Still there are additional methods which arguments on natural recovery that may be catalyzed by practical activities. A direct injury to elbow may end in swelling of tendon leading to erosion[8]. Now a day there is increasing demand of computer and industrial work, some of major risk factors for repetitive trauma/ cumulative syndromes such as Lateral epicondyle tendinopathy. Such disorders have long been dealt as pain syndromes and first line of treatment used to medical treatment[2]. These techniques are now being used as first line treatments. In course of become more precise and specialized, it is question of importance that among different manual therapy approaches, which techniques is better comparatively.

Current study sorted this query out. This was supposed to prove a guiding force in devising practice guidelines for lateral epicondyle tendinopathy

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## MATERIALS AND METHODS

It was a Randomized Clinical Trial. Data was collected through convenience sampling. Total 68 patients were taken. Online sample size calculator by Epi Tools epidemiological calculator was used with following formula based on sample population and proportion. Patients were invited through word of mouth, pamphlets explaining signs symptoms of lateral epicondyle tendinopathy. Patients were selected with diagnosed tendinopathy of lateral epicondyle at time of selection and having problem from last 4 weeks. The criteria of diagnosis was that patients reporting pain of elbow lateral side, which increase while pressure on the lateral epicondyle with or without resisted wrist dorsiflexion with resistance.Patients with complaints of parallel or referred problems such as frozen shoulder, history of trauma or congenital anomalies were excluded[8].

Patients were distributed equally in two groups by method of coin toss for randomization. Group classification was such as Group 1, medial lateral glide method, Group 2, anterior radial glide. Patients were unaware from group options. Assessors were taken

senior physiotherapists who were aware with tools. The physiotherapists providing the treatment were possibly aware, firstly due to different treatment procedures.Group 1was provided medial lateral glide. Patients preferably in supine position with lateral glide pushing ulna lateral that transfer glide into lateral apparatus of elbow ultimately impacting lateral epicondyle tendinopathy; and medial glide providing mechanics vice versa. Group 2 was provided with anterior glide of radius to relieve symptoms. Patients were supine or side lying. The forearm was held in mid position, ulna was fixed with stabilization hand and radius was moved anteriorly[9].

Outcomes and outcome measures were as followings; First, The Global Improvement Measure. This is a 6-point scale (1, completely recovered; 2, much improved; 3, little improved; 4, not changed; 5, little worse; 6, much worse)[10]. Second, Numeric Rating Pain Scale[11] [NRPS] was used as outcomes measures. Numeric Rating Pain Scale, NRPC is a line having anchors at 0 indicating no pain and 10, indicating worst experienced pain. The subjects will be asked to point anywhere on spectrum, their lateral elbow pain[11].

## RESULTS

Data analysis was done by using IBM-SPSS 25. The comparison of socio-demographic variables such as age, weight, height, and Body Mass Index (BMI) was summarized. It was determined that the mean age of patients in group 1 was 41.13±5.6 years comparable to group 2 which was determined as 37.73±5.08 years. In Group 1, mean value of weight was 62.3±10.12 kg, while in group 2 was 62.23±12.49 kg. Mean value of height in group 1 was 5.12±.45 inches, while in other group it was 5.37±12 inches. Mean value of Body Mass Index (BMI) in group 1 was 20.56±4.39kg/$m^2$, and in group 2 was 21.83±4.30kg/$m^2$.This result shows between group comparisons. All levels were statistically significantly different towards improvement in hamstring muscle tightness (p-0.003, 0.000 and 0.000 respectively). Average difference at before treatment and first after treatment reading, before treatment and second after treatment reading, before treatment and third after treatment reading were 0.275, 1.075 and 1.425 respectively. The table 1 shows between group comparisons at third reading for right leg aftertreatment. The p value of 0.896 presented that there was no significant difference in effects of both treatments. P value 0.929verifies this fact. The average difference was 0.0757. The table 2 shows between group comparisons at third reading for right leg aftertreatment. The p value of 0.907 presented that there was no significant difference in effects of both treatments. P value 0.819verifies this fact. The average difference was 0.7926. The table 3 shows between group comparisons at third readingfor right leg aftertreatment. The p value of 0.922 presented that there was no significant difference in effects of both treatments. P value 0.668 verifies this fact. The average difference was 0.357.

Table 1 Comparison of Means after First Reading

| After Treatment Readingat 1st reading | Independent Samples Test- 1st After Treatment Reading | | | | | | |
|---|---|---|---|---|---|---|---|
| | t | df | P value | Average Difference | Std. Error Difference | Confidence level 95% | |
| | | | | | | Minimum | Max |
| | -.089 | 72 | .929 | -.07571 | .84708 | -1.76394 | 1.61251 |

Table 2 Comparison of Means after Second Reading

| After Treatment Readingat 2nd reading | Independent Samples Test 2nd After Treatment Reading | | | | | | |
|---|---|---|---|---|---|---|---|
| | t | df | P value | Average Difference | Std. Error Difference | Confidence level 95% | |
| | | | | | | Lower | Upper |
| | -.229 | 73 | .819 | -.19286 | .84056 | -1.86810 | 1.48238 |

Table 3 Comparison of Means after Third Assessment

| After Treatment Reading of at 3rd reading | Independent Samples Test 3rd After Treatment Reading | | | | | | |
|---|---|---|---|---|---|---|---|
| | t | df | P value | Average Difference | Std. Error Difference | Confidence level 95% | |
| | | | | | | Lower | Upper |
| | -.431 | 73 | .668 | -.35714 | .82914 | -2.00961 | 1.29532 |

Table 4: Global Improvement Measure

| Global Improvement Measure | | Frequency | Percentage |
|---|---|---|---|
| Medial or lateral glide group | Completely Recovered | 14 | 41.2 |
| | Much Improved | 15 | 44.1 |
| | Little Improved | 5 | 14.7 |
| | Total | 34 | 100.0 |
| Anterior radial glide | Completely Recovered | 10 | 29.4 |
| | Much Improved | 10 | 29.4 |
| | Little Improved | 13 | 38.2 |
| | Not Changed | 1 | 2.9 |
| | Total | 34 | 100.0 |

## DISCUSSION

This study showed that although there was no significant difference in effects of both techniques while they are compared with each other, but there are better outcomes of medial or lateral glide in improving lateral epicondilysitis and tendinopathy. This may be related to a cascade of related factors and ground circumstances. This was similar to findings in previous studies conducted with similar objectives[12].

In previous studies the baseline features including age were equal in both groups. Findingsalso showed the common age range for this problem of tendinopathy. Most of individuals at this age group are involved in repetitive use of wrist and hands. It was also evident due the fact that most of subjects in our study were computer writers, bike drivers and persons doing jobs involving repeated activities such as bank cashiers and stickers. Still average age of subjects in Anterior Radial glide was little less than that of medial lateral glide group. Despite this age advantage, the medial lateral glide group performed better as compared to anterior radial glide[4].

Other parameters were body mass index. It was on borderline on average for both groups. Body mass index is determined by height of subjects in meters and weight in kilograms. As the most of subjects in this study were males and active ones, the average body mass index was not found to be out of normal limits[7].

This is contrary to between national literatures where in most of studies on tendinopathy, the BMI was above normal. BMI is being considered one the contributing factor in soft tissue injuries and the injuries involving repetitive activities[5,13].

Previous literature debates that the increased BMI impacts the quality of collagen and biochemistry of soft tissue. This makes the tissue fragile thus more prone to injury. Findings of this study suggest that repeated usage itself may the main factor in causing such disorders. Anyway, whatever deep down pattern is, advantage or disadvantage of BMI, both groups performed equal in many terms[14].

Primary outcome measure i.e. Numeric Rating Pain Scale, NRPS, depicts both group equal at baseline with no significant

difference in severity and intensity of pain reported by subjects, though both groups presented with severe pain. This is evident from findings that the medial lateral glide group improved more than that of anterior radial glide group, although the difference was not significant, despite the average intensity of pain was more in medial lateral glide group[15].

In previous literature, a few treatment choices are accessible, including a hopeful strategy, corticosteroid infusions, orthotic gadgets, surgery, and physiotherapeutic modalities, for example, works out, ultrasound, laser, back rub and electrotherapy, and controls. In Dutch essential care, 21% of individuals having lateral epicondyle tendinopathy are endorsed an orthotic gadget as a treatment methodology, and a wide range of sorts of supports and other orthotic gadgets are accessible for treating tennis elbow. The primary sort is a band or lash around muscle of belly of wrist[16].

This device made outcomes all the more clear and self-evident. Every one of the subjects enhanced in both of gatherings, however the subjects in average horizontal coast assemble demonstrated finish recuperate at lion's share. The subjects in other gathering additionally demonstrated recuperation however a lot of enhanced degree[6,17].

In patients with lateral epicondylitis, Mobilization is utilized as treatment for at accomplishing absence of pain and upgrading power of grasp, despite the fact that the strategies basic these impacts are vague. The data of our study, however, showed a marked improvement at all levels of reading. Only the between group comparison produced findings that showed no significant difference among these[15,18,19].

## CONCLUSION

The study concluded that there was no significant different in outcomes of medial lateral glide and anterior radial glide in improving tendinopathy in lateral epicondylitis.

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## REFERENCES

1. Gliedt JA, Daniels CJ. Chiropractic treatment of lateral epicondylitis: a case report utilizing active release techniques. J Chiropr Med. 2014;13(2):104-9.
2. Hoogvliet P, Randsdorp MS, Dingemanse R, Koes BW, Huisstede BM. Does effectiveness of exercise therapy and mobilisation techniques offer guidance for the treatment of lateral and medial epicondylitis? A systematic review. Br J Sports Med. 2013;47(17):1112-9.
3. Vicenzino B. Elbow tendinopathy: lateral epicondylalgia. Manual Therapy for Musculoskeletal Pain Syndromes E-Book: an evidence- and clinical-informed approach. 2015:445.
4. Clar C, Tsertsvadze A, Hundt GL, Clarke A, Sutcliffe P. Clinical effectiveness of manual therapy for the management of musculoskeletal and non-musculoskeletal conditions: systematic review and update of UK evidence report. Chiropractic & manual therapies. 2014;22(1):12.
5. Descatha A, Albo F, Leclerc A, Carton M, Godeau D, Roquelaure Y, et al. Lateral Epicondylitis and Physical Exposure at Work? A Review of Prospective Studies and Meta-Analysis. Arthritis care & research. 2016;68(11):1681-7.
6. Savoie FH. Elbow Injuries: Common Problems and Solutions. Clinics in sports medicine. 2018;37(2):209-15.
7. Weber C, Thai V, Neuheuser K, Groover K, Christ O. Efficacy of physical therapy for the treatment of lateral epicondylitis: a meta-analysis. BMC musculoskeletal disorders. 2015;16(1):223.
8. MacDermid JC, Silbernagel KG. Outcome Evaluation in Tendinopathy: Foundations of Assessment and a Summary of Selected Measures. J Orthop Sports Phys Ther. 2015;15:1-34.
9. Solanki D, Kage V. Effectiveness of medial mulligan glide versus internal rotation mulligan glide in knee osteoarthritis-a randomized clinical trial. Romanian Journal of Physical Therapy/Revista Romana de Kinetoterapie. 2015;21(35).
10. Birinci T, Razak Ozdincler A, Altun S, Kural C. A structured exercise programme combined with proprioceptive neuromuscular facilitation stretching or static stretching in posttraumatic stiffness of the elbow: a randomized controlled trial. Clinical rehabilitation. 2019;33(2):241-52.
11. Young Ia Pt D, Dunning J Pt DPT, Butts R Pt P, Mourad F Pt DPT, Cleland Ja Pt P. Reliability, construct validity, and responsiveness of the neck disability index and numeric pain rating scale in patients with mechanical neck pain without upper extremity symptoms. Physiotherapy theory and practice. 2019;35(12):1328-35.
12. Glaser R, Bhatt JB, Chavez A, Yung E. Management of Lateral Epicondylalgia Targeting Scapular Muscle Power Deficits: A Case series. Journal of Hand Therapy. 2016;29(2):e5-e6.
13. Fu MC, Ellenbecker TS, Renstrom PA, Windler GS, Dines DM. Epidemiology of injuries in tennis players. Current reviews in musculoskeletal medicine. 2018;11(1):1-5.
14. Stasinopoulos D. Mulligan Mobilization With Movement: Can It Be Used for the Management of Any Tendinopathy? Trauma Monthly. 2017;22(1).
15. Lucado AM, Dale RB, Vincent J, Day JM. Do joint mobilizations assist in the recovery of lateral elbow tendinopathy? A systematic review and meta-analysis. Journal of Hand Therapy. 2018.
16. Menta R, Randhawa K, Cote P, Wong JJ, Yu H, Sutton D, et al. The Effectiveness of Exercise for the Management of Musculoskeletal Disorders and Injuries of the Elbow, Forearm, Wrist, and Hand: A Systematic Review by the Ontario Protocol for Traffic Injury Management (OPTIMa) Collaboration. J Manipulative Physiol Ther. 2015;38(7):507-20.
17. Rolla PR, Pitino D, Delle Rose G. Lateral Epicondylitis of the Elbow. Arthroscopy and Sport Injuries: Springer; 2016. p. 223-8.
18. Gayatri Gurav JG, Patel J. Evaluation Of The Effect Of Mobilization With Movement On Pain, Kinesiophobia And Activities Of Daily Living In Lateral Epicondylitis–An Experimental Study. 2016.
19. Gulick D. Ortho notes: clinical examination pocket guide: FA Davis; 2018.