

# IMPLEMENTATION OF 2 WEEKS ECCENTRIC EXERCISE ON LATERAL EPICONDYLOSIS AMONG INDIAN HOME MAKERS

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**Abstract:** Background: Lateral epicondylitis is common pathological condition affecting middle aged populations around the world. The need of the study examined by eccentric strengthening exercise to rehabilitate a patient and discussed about the LET.

Case description: A 34 years aged female developed LET on her left elbow pain was persisting for more than 2 months and progressed severely past 3weeks symptoms of stiffness, ache, decreased functional activity not able to do her activity , all range of motion is limited in her hand due to severe pain on her lateral side of elbow and orthopedic special test was done cozen test and its confirmed as tennis elbow and client treated with eccentric strengthening exercise for 20 minutes for 2 weeks along with cryotherapy for 3 minutes and the pain and functional activity is assessed by patient rated tennis elbow evaluation and patient scored 75/100 pain and activity .

Conclusion: Lateral epicondylitis is a common ailment, especially among in athletes and general populations. While the healing process is sometimes long and arduous, eccentric strengthening will allow the majority of patients to recover from their pain and improve function and strength, Successful treatment involves measures to relieve pain and reduce stress and improve function at elbow joint region and Eccentric strengthening exercise would produce better outcomes than other treatments recommendations are based on the best current evidence and are likely to be refined as more evidence kindly need to further study to improve quality of treatment.

## Introduction

Lateral epicondylitis or tennis elbow is a common pathology of both athletes and non-athletes, affecting 1 to 3 % of the population at large<sup>1</sup>. This condition is most often associated with overuse or a repetitive stress, as opposed to an acute inflammatory reaction<sup>2</sup>. The lack of pathological evidence of inflammation in these types of injuries has lead most authors to now refer to this condition as an epicondylitis, abandoning the mislabeled “itis”<sup>3,4</sup>. There are many treatment options available to the clinician, but the part played by eccentric strengthening something commendable and has a renounced effect in treating lateral epicondylitis. Various treatments ranging from conservative to more invasive measures have been described with varying degrees of success, with no conclusive scientific evidence to support any particular treatment protocol<sup>5</sup>.

Although many treatment modalities may be used, few of them rest on scientific evidence and none have really been proven to be more effective than the others. The paucity of evidence on treatments for lateral epicondylitis may stem from several sources, including the self limiting nature of the condition, the lack of patho-physiological data, the methodological shortcomings of the current studies, and the existence of multiple factors which may influence the outcome<sup>1-7</sup>. Hence this case study will highlight the course of lateral epicondylitis in one patient, and examine the anatomy, pathology and treatment options in a review of the literature.

## Case Report

A 34-year-old Indian female homemaker who has developed a left hand pain that had lasted three months. The pain, which had progressively worsened in the past three weeks before it has been characterized as stiffness, ache, and sometimes throbbing and decreased in functional activity, then it was rated as an 85/100 in intensity and functional on a patient rated tennis elbow evaluation (zero being no pain & improved functional activities and 20 mild pain, 60 being moderate pain and difficulty in ADL and 80 being the worst pain difficulty in ADL ever).

The patient was not able to do her work in activity in daily life like (washing clothes, washing vessels, cooking, sweeping at home etc). The pain began during the activity and it slightly reduce during rest and while icing. Then she went to consultate an orthopedic and he advised some analgesic and elbow strap. After 15days again she got a pain on her left elbow and orthopedic surgeon advice for a physiotherapy her pain was described to be the worst it had ever been.

The pain was noted to be at its worst in the morning, and was aggravated by extending the wrist to brush his teeth, open doors, and carry groceries. Ice and pain killer ointments were reported to be minimally relieving. The patient discarded his elbow strap considering it to be of no benefit. No numbness, tingling or weakness was noted in the hand. All active ranges of motion of the elbow joints were full, while flexion and extension in the right wrist were limited due to pain. Passive range of motion, was also limited by patient discomfort particularly at the end range of left wrist flexion and was able to reproduce the patient’s chief complaint at the left elbow. Resisted wrist extension and grip strength were very painful and the patient declined to provide much effort as this reproduced a sharp pain at the lateral epicondyle. Motion palpation of the radial head proved unremarkable and was not pain provoking.

The common extensor origin was tender to direct palpation, as was the extensor carpi radialis brevis, which was noted to be leathery and lumpy. Orthopedically special test has done, Cozen’s test (resisted wrist flexion from a flexed elbow and pronated/extended wrist position) was positive. Mill’s test, (passive extension of the elbow from a flexed elbow, pronated forearm and flexed wrist/finger position) was inconclusive in that it was uncomfortable but did not produce pain at the lateral epicondyle<sup>8-11</sup>.

The patient was diagnosed with lateral epicondylitis of the extensor carpi radialis brevis. She was treated six times over two weeks with eccentric strengthening exercise to the affected muscles at the common origin (namely- extensor carpi radialis brevis / longus, and supinator). In addition to the eccentric training, a rehabilitation program was performed which was followed by 7 minutes of icing. After the treatment the patient reported to feel slightly better & advised to do exercise at home, and at the time of discharge there was complete resolution of her symptoms (PRTEE 60/100 with moderate pain provocation on examination). The patient should continue a treatment for 2 weeks and returned to her activity progressively increased and at one and two month follow-ups to denied any exacerbation of the condition. after a two weeks of treatment client was reassessment was taken by using patient rated tennis elbow evaluation client scored 0/100.

## DISCUSSION

Tennis elbow is a painful ailment about the elbow that is common in tennis players and also commonly in people aged 40 to 50 years with an equal distribution between men and women. The dominant arm is involved in 75% of patients, with lateral epicondylitis. It has been reported that nearly 35% of female population which are all Indian female homemaker in over 35 years old<sup>7-9</sup>. Eccentric strengthening is almost used in sports rehabilitation and movements are characterized by a combination of both concentric and eccentric muscle action<sup>11-14</sup>. During eccentric work the muscular-tendon system is stretched and by that absorbs mechanical energy. The absorbed energy can be dissipated as heat. In that situation, the muscle works as a shock absorber, for example while downhill running, skiing, or during landing movements. Alternatively, during fast and cyclic movements, the absorbed energy will temporarily be stored as elastic energy and subsequently recovered during an immediate shortening contraction. By this stretch-shortening cycle (SSC), the muscle acts in a spring like manner<sup>15-19</sup>.

**ECCENTRIC EXERCISE INTERVENTION:** Compared with concentric exercise, eccentric loading has the potential to overload the muscular system at very low energy cost. This makes eccentric training an interesting training adjunct in strength and conditioning programs for performance enhancement or injury prevention purposes in elite sports<sup>20</sup>. Despite numerous reports on the effects of eccentric exercise in untrained subjects or clinical trials, there is a lack of investigations on training effects in highly trained athletes. Furthermore, differences in training and testing protocols make it difficult to draw generalized conclusions on the effect of eccentric training on strength and exercise performance<sup>19-21</sup>.

According to the PEDro database, the mean rating score was 5.2/10. There was large variation in EE, treatment duration, clinical or home setting and pain experience during training between studies. One of nine studies was available only in abstract form. Six of nine studies did not perform a follow-up, evaluating patients only at the end of the treatment. In all studies, EE produced an improvement of LET from the baseline<sup>19-22</sup>. When compared with other therapies, EE was associated with a significantly better outcome in only two of nine studies. In particular, EE in LET seems more effective than isotonic strengthening, while the superiority of EE against wrist extensor stretching is controversial but EE should be adopted as first-line choice for LET. In conclusion, the evidence of effectiveness of EE in LET in comparison with other treatments is low.

There was large inconsistency about pain prescription during exercise and no indication in this sense can be provided. These results, in contrast with those reported for AT, might be attributed to the different functional and anatomic characteristics of the therapeutic targets. Nevertheless, the superiority of EE versus no treatment<sup>18-21</sup>.

## Conclusion:

Lateral epicondylitis is a common ailment, especially among in athletes and general populations. While the healing process is sometimes long and arduous, early recognition and conservative care and eccentric strengthening will allow the majority of patients to recover from their pain and return to their work earlier. Successful treatment involves measures to relieve pain and reduce stress around by lateral condyle region and to improve a function as possible and make a client to do their work independently. The recommendations eccentric strengthening exercise are based on the best current evidence and are likely to be refined as more evidence kindly need to be arise.

## EXERCISE INTERVENTION

- [1] Slow wrist flexion starting from a prone, full extension wrist position using an elastic band held by a handle and fixed on the floor with the ipsi-lateral foot, lengthening the band with the opposite hand to avoid resistance concentric contraction; 3 sets × 10 reps, once daily, with 2–5 min rest between sets.
- [2] Seated position, full elbow extension, forearm pronation: from maximum wrist extension slow flexion for a count of 30, using contra-lateral hand to return to maximum extension; progressive load increasing using free weights; 3 sets × 10 reps; 1 min rest between sets.
- [3] Seated on armchair with forearm support, lifting and lowering a liquid container bottle (with variable weight in it), 3 sets × 15 reps, twice daily × 2 weeks.
- [4] Eccentric training of the forearm using a bucket of water as a resisted weight for 2 weeks. 8–12 reps once/day during first week, twice/ day the following 2 weeks, 3 × 8–12 reps twice/ day.
- [5] Wrist flexion from a complete extension starting position, flexed elbow with a fill-able dumb-bell in the hand (3 sets × 5 reps × 2 weeks).
- [6] Isolated eccentric training obtained with an inexpensive rubber bar which is twisted during flexion of the uninvolved wrist and untwisted with affected wrist eccentric extension (duration: 4 s), 3 sets × 15 reps, 30rest periods btw sets, twice daily; duration of treatment individualized on the patient symptoms.

- [7] Seated position, full elbow extension, forearm pronation from maximum wrist extension slow flexion for a count of 30, using contra-lateral hand to return to maximum extension; progressive load increasing using free weights; 3 sets × 10 reps; 1 min rest btw sets; 3 times/week × 2 weeks.
- [8] Extension of the involved wrist under resistance for 6 to 8" (3 sets × 5 reps × 2 weeks).

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