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Effectiveness of Cyriax DTFM along with Conventional Physiotherapy among the Patients with Lateral Epicondylitis in Dhaka City: A Quasi-experimental study

Mst: Hafsa Khatun

Bachelor of Science in Physiotherapy (B.Sc. PT)

DU Roll no: 1395

Reg. no: 10424

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SAIC College of Medical Science and Technology

Department of Physiotherapy

Mirpur-14, Dhaka-1216

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We, the undersigned, certify that we have thoroughly read and recommended to the Faculty of Medicine at the University of Dhaka for admission this dissertation entitled**. "Effectiveness of Cyriax DTFM along with Conventional Physiotherapy among the Patients with Lateral Epicondylitis in Dhaka City: A Quasi-experimental Study** "Submitted by **Mst: Hafsa khatun** for the partial fulfillment of the requirements for the degree of Bachelor of Science in Physiotherapy (B.Sc. in PT).

…….....

Md. Kutub Uddin

Lecturer

Department of Physiotherapy

SCMST, Mirpur -14, Dhaka

Supervisor

……

Dr. Mohammad Sohrab Hossain, PhD

Professor,

Department of Physiotherapy, BHPI, CRP

Executive Director,

Centre for the Rehabilitation of the Paralysed (CRP)

CRP Savar, Chapain, Savar, Dhaka- 1343

……

Zahid Bin Sultan Nahid

Assistant Professor and Head

Department of Physiotherapy

SCMST, Mirpur-14, Dhaka.

……

Dr. Abul Kasem Mohammad Enamul Haque

Principal SCMST, Mirpur-14, Dhaka.

DECLARATION

I declare that the work provided here is my own. All sources have been properly attributed. Any errors or inaccuracies are my own. This also includes any work that is published, presented, or disseminated. I would need a signed consent from the Saic College of Medical Science and Technology (SCMST).

Signature: Date:

Mst. Hafsa Khatun

Bachelor of Science in Physiotherapy (B.Sc. in PT)

DU Roll no: 1395

Registration No: 10424

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SCMST, Mirpur, Dhaka

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ACRONYMS

DTFM	Deep Transverse Friction Massage
ECRB	Extensor Carpi Radialis Brevis
ECRL	Extensor Carpi Radialis Longus
ECU	Extensor Carpi Ulnaris
EDC	Extensor Digitorum Communis
LE	Lateral Epicondylitis
MWM	Movement with Mobilization
NPRS	Numeric Pain Rating Scale
QES	Quasi Experimental Study
ROM	Range of Motion
TEFS	Tennis Elbow Functional Scale

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ABSTRACT

Introduction: Lateral epicondylitis, commonly known as tennis elbow, is a prevalent musculoskeletal condition affecting the functionality and quality of life of individuals. This study evaluates the efficacy of Cyriax Deep Transverse Friction Massage (DTFM) combined with physiotherapy interventions in reducing pain, improving functional outcomes, and enhancing grip strength among patients with lateral epicondylitis. **Objectives:** To find out the effectiveness of Cyriax DTFM along with conventional physiotherapy among the patients with lateral epicondylitis. **Methods:** A prospective experimental study was conducted on 10 participants, evenly distributed by gender, predominantly urban dwellers (90%), and with a high level of education (60% holding a Bachelor's degree). Baseline characteristics, pain intensity (assessed using the Numeric Pain Rating Scale - NPRS), and functional outcomes (measured through the Tennis Elbow Functional Scale - TEFS) were recorded pre- and post-intervention. Data analysis was performed using the Wilcoxon signed-rank test to determine statistical significance. **Results:** The intervention yielded significant improvements across all measured parameters. NPRS scores showed substantial reductions in pain, with a mean difference ranging from 3.8 to 5.8 across various activities ($p < 0.005$). Functional scores measured by TEFS exhibited a mean decrease from 28.00 ± 6.377 to 10.80 ± 3.584 ($p = 0.005$), indicating enhanced performance in daily tasks. The results affirm the efficacy of DTFM in promoting pain relief, functional recovery, and improved grip strength in lateral epicondylitis. **Conclusion:** Cyriax DTFM, when integrated with a structured physiotherapy protocol, is a highly effective treatment for lateral epicondylitis. The findings underscore its role in reducing pain and improving functional abilities, particularly in individuals with chronic symptoms. Future research should explore the long-term sustainability of these improvements and investigate the integration of emerging technologies with manual therapy for optimized outcomes.

Key words: *Lateral epicondylitis, Cyriax DTFM, Physiotherapy, Pain management, Functional recovery.*

CHAPTER: I INRODUCTION

1.1 Background:

Tennis elbow, commonly known as lateral epicondylitis (LE), is one of the most common conditions observed in clinical practice. It is the most frequent reason for forearm and elbow pain. ECRB (resisted finger or wrist extension) increases lateral epicondyle discomfort and diminishes grip strength. The vascular hypertrophy, collagen fiber disorders, and larger fibroblasts are its hallmarks, and they are all brought on by ineffective and degenerative repair (Fouda et al. 2017, p. 663).

Degenerative alterations including tendinosis and micro teared fibrous tissue at these areas, commonly known as "tennis elbow," and lateral epicondylitis are caused by wrist injuries caused by excessive extensor muscle activity (Sanders et al. 2015, p. 18). In 1873, Mr. Runge published the first description of lateral epicondylitis (Trivedi et al. 2014, pp. 488). The most common overuse injury of the elbow is lateral epicondylitis, sometimes known as tennis elbow and more recently as lateral elbow (or epicondyle) tendinopathy (LET). Common repetitive upper limb activities that induce it include using a computer, vibrating often, carrying heavy objects, and pronating and supinating the forearms (Tarpada et al. 2018, p. 107).

Tennis elbow is caused by painful tendon injury to the short radial extensor on the lateral side of the wrist. Relevant risk factors include age, poor circulation, weak or unequal muscles, repetitive motions, improper training, misalignment, and mental health issues (Landesa et al. 2022, p. 463).

One type of overuse damage is tennis elbow (Singh et al. 2022, p. 147). It is a common cause of elbow pain, occurring 10 to 30 times per 1,000 people annually, peaking between the ages of 35 and 55 (Pathan et al. 2023, p. 15). Lateral epicondylitis, often known as tennis elbow and, more recently, lateral elbow (or epicondyle) tendinopathy (LET), is the most prevalent condition caused by overuse of the elbow. It is commonly caused by repetitive upper limb activities such as using a computer, pronating and supinating the forearms, vibrating a lot, and handling heavy objects (Tarpada et al. 2018, p. 107).

Extensor tendons in the dorsal forearm that attach to the lateral epicondyle of the humerus are afflicted by the crippling condition known as lateral epicondylitis. Persistent elbow pain in the radio humeral joint is primarily caused by tendinitis, lateral epicondylitis, tennis elbow, and other associated conditions. It is commonly observed in many different professions and hobbies, but it is typically linked to repeated activities, such as those in racquet sports. Often included are gliding joint grabbing exercises and other rapid, difficult, continuous eccentric movements. Usually, the dominant arm is affected. Lateral epicondylitis affects 3.4 out of every 1,000 individuals. The incidence was higher in patients between the ages of 40 and 49 and 50 and 59, respectively (Degen et al. 2018, p. 14).

Fibroblasts, vascular hyperalgesia, and disordered collagen are histological markers of tendon degenerative disorders. The epicondyle is usually the only area of discomfort, but in more severe cases, it can spread to the shoulder and wrist. Usually, it results from strain on the epicondyle muscles, resistance to wrist extension, and pressure on the epicondyle. The most prevalent age range, with an estimated 40% incidence, is 35 to 54 years old (Fernandez et al. 2007, p. 360).

Tennis elbow is the result of a large tendon damage to the short radial extensor on the outside of the wrist. Risk factors that may be significant include age, poor circulation, overuse, repetitive motions, inadequate training, misalignment, flexibility issues, muscle weakness or imbalance, and mental health issues (Landesa et al. 2022, p. 477).

Patients with tennis elbow may have both microscopic and macroscopic lesions in their ECRB. Chronic pain and soreness in the outer elbow region are the primary symptoms of tennis elbow, making it extremely difficult to do even simple tasks like picking up a cup of coffee or shaking hands (Shukla et al. 2023, p. 341). Increased discomfort, a decrease in physical activity, and trouble grasping are the main signs and symptoms of tennis elbow. Daily activities may be considerably impacted by these symptoms (Ashfaquzzaman. 2020, p. 122). Damage to the forearm's common extensor tendon is the main cause of it (Trivedi et al. 2014, p. 488). Rheumatoid arthritis is one of the most common medical conditions in both developed and developing countries. Worldwide, between 11% and over 50% of people suffer from rheumatoid arthritis. A handicap is the outcome in two thirds of these cases. According to a study, musculoskeletal symptoms account for 2.77 pe

cent of tennis elbow cases and 26.1% of adult cases of rheumatic illnesses in Bangladesh (Hasan et al. 2009, p. 814). Tennis elbow affects 1% to 3% of the adult population, however only 5% of those affected actually play the sport (Smidt et al. 2006, p. 51). An estimated 2.77% of Bangladeshis suffer from tennis elbow (Hasan et al. 2009, p. 814).

Tennis elbow affects four to seven persons per thousand annually (Struijs et al. 2004, p. 469). In western civilizations, lateral epicondylitis is a major economic concern (Shmushkevich & Kalichman. 2013, p. 24). Demand that results in a high rate of hospitalization the majority of people with lateral epicondylitis are between the ages of 30 and 60. While pain is the same for both sexes, women are impacted more severely (Stasinopoulos & Johnson. 2004, p. 675). Most of the time, it affects the strongest arm. Both non-players and players of tennis can develop tennis elbow. Tennis elbow accounts for 75–80% of the elbow pain that athletes report having experienced, with up to 50% of them reporting some form of elbow discomfort (Bisset et al. 2005, p. 411).

state that a typical case of lateral epicondylitis might last anywhere between six months and two years (Smidt et al. 2003, p. 62). When lateral epicondylitis symptoms last longer than three months, they are classified as chronic, according to (Khuman et al. 2013, p. 52). Tennis players are more likely to develop tennis elbow since it is a disorder that can affect anyone due to repeated strain on the wrist extensions. A clinical examination is used to diagnose tennis elbow. MRI, radiographic examination, and ultrasound imaging, however, may be helpful in chronic circumstances to rule out other possible causes of lateral elbow stiffness (Olaussen et al. 2009, p. 13).

A painful tendon damage to the short radial extensor on the lateral side of the wrist causes tennis elbow. Overuse, repetitive motions, inappropriate training, asymmetry, flexibility problems, aging, poor circulation, muscle weakness or imbalances, and psychological problems are all relevant risk factors (Landesa et al. 2022, p. 477). Tennis elbow is not only uncomfortable, but it can also have long-term effects that make it harder for a person to work and do daily duties (Nagore et al. 2023, p. 15). Reduced grip strength, increased stress levels, and decreased physical activity are the main signs and symptoms of tennis elbow. Daily activities are greatly impacted by these symptoms (Ashfaquzzaman. 2020, p. 130). Assessing tennis elbow is an easy process. A test that examines the lateral end of the elbow aspect and causes pain and soreness combined with wrist extension problems, resistance to the middle finger as a result, and passive

wrist bending may validate this finding (Viswas et al. 2012, p. 300). Lateral epicondylitis is a common neuromuscular condition that is brought on by repeated microtears to the upper extremities, in particular, the lateral epicondyle (LE) of the elbow (Yao et al. 2020, p. 2064781). Pathological anomalies primarily affect the extensor carpi radialis brevis tendon, although they can also cause alterations in the extensor digitorum communis and extensor digitorum longus. When grasping is repeated, a considerable quantity of forces is shared along the tendon of the tiny origin of the Extensor carpi radialis brevis. It implies that when the forearm is under shearing stress, it is vulnerable to attack in every movement. Although the precise causation of tennis elbow is unknown, lateral epicondylitis is usually thought to be the result of overuse or recurrent microdamage (Lamba et al. 2012, p. 41) (Tosti et al. 2013, p. 357).

Extensor carpi radialis brevis strains occur most frequently; however, they can also impact the extensor digitorum and the extension carpi ulnaris the primary mark on the lateral epicondyle formed by the forearm extensor muscles is usually not too far from the most painful region. The radial nerve splits into the surface radial nerve and the posterior interosseus nerve at the radio-capitellar joint. The Posterior Interosseus nerve was trapped by pericapsular connective tissue, which resulted in tunnel syndrome. Damage is caused by a lack of forearm muscle endurance and increased strain from soft tissue overloading around the radial head. Maximal torque, a sudden rise in extensor wrist activity, and excessive wrist extensor repetition are the three main causes (Lamba et al. 2012, p. 41).

Pain and discomfort between the fascia, radial head, and radial epicondyle of the humerus may be a common complaint. begins at the root of the extensor muscle and extends to the forearm. Many complain of weak and painful hands, which can cause excruciating pain around the lateral epicondyle when performing duties like picking up a milk carton, carrying a bag, or opening doors (Tsakoniti et al. 2011, p. 104).

Applying tape is recommended as a means to lessen apprehension improve muscle function, and improve range of motion. By lessening the intensity of symptoms, taping helps patients adhere to exercise rehabilitation programs. When participating in therapeutic exercise (Vicenzino et al. 2003, p. 400). The primary purpose of tape is to create a hard or semi-rigid splint across a joint or the surrounding tissues in order to stabilize a bodily part that is failing without affecting its ability to function (Sharath. 2005, p.

27). The diamond tape may assist make it easier for patients with persistent lateral epicondylitis to engage in pain-free upper limb activities and exercise rehabilitation regimens. Mc-Connell felt that the original of this tape method, who stated that pain relief, which promotes improved movement and performance, is the main mechanism by which therapy 3 functions. The tennis elbow tape method is considered a beneficial adjunct to exercise and has been shown to significantly reduce discomfort while boosting forearm muscle activation (Vicenzino et al. 2003, p. 407.). Both tennis players and non-players may develop tennis elbow. Tennis elbow is the cause of elbow pain in 75–80% of the cases that athletes report having, up to 50% of them (Bisset et al. 2005, p. 422).

An episode of lateral epicondylitis usually lasts six months to two years (Smidt et al. 2003, p. 62). When acute lateral epicondylitis symptoms persist for three months or more, they are categorized as chronic (Khuman et al. 2013, p. 52). Numerous histological studies have clarified the microscopic look and characteristics of the illness, leading to the previous definition of the term being Angio fibroblastic dysplasia. Tears and calculations are common during an ultrasound scan. within the substance, noticeable anomalies in the lateral epicondyle, and modifications to the composition and thickness of the common extensor tendon (Alagaesan et al. 2024, p. 27). Cyriax has shown notable benefits in the treatment of tennis elbow by combining deep transverse friction (DTF) with Mill's manipulation, which is performed immediately following DTF (Stasinopoulos. 2015, p. 677).

The two elements must be employed exactly in that order for the intervention to be categorized as a Cyriax. For four weeks, participants must show up for treatment sessions three times a week (Patel et al. 2023, p. 31). Exercise programs that incorporate strengthening, flexibility, or endurance training are typically part of the traditional therapeutic intervention for tennis elbow (Stasinopoulos & Johnson. 2004, p. 675).

Cyriax adds the procedure should be done in compliance with the DTFM as soon as the patient reaches full passive extension of the elbow. If elbow extension is passively inhibited, rather than affecting the common extensor tendon, the manipulation push will affect the elbow joint, which could result in traumatic arthritis. It is described as a push applied passively near the end of range, or when all of the available slack has been used, at a high velocity and minimum amplitude. Again, there aren't enough well-designed controlled studies to support the technique's claims that it will tear adhesions in the

teno-osseous junction, expand scar tissue, and return painlessness to the injured area (Stasinopoulos and Johnson. 2004, p. 677).

Cyriax Deep Transverse Friction Massage (DTFM) technique is seen to be an effective adjunct to lateral epicondylitis treatment, particularly for managing chronic pain and dysfunction. DTFM, like tape, does not replace comprehensive rehabilitation, but rather enhances the overall treatment strategy. The primary goal of DTFM is to reduce pain while improving biomechanics and function in the affected area. Cyriax uses deep, transverse friction on the tendon to break down adhesions and scar tissue, accelerating healing and reducing discomfort. This method is particularly effective in restoring normal movement and forearm muscle function, making it a feasible treatment for chronic lateral epicondylitis (Stasinopoulos. 2015, p. 2).

1.2 JUSTIFICATION:

Lateral epicondylitis, sometimes known as tennis elbow, is a debilitating and painful condition that affects the elbow joint and surrounding structures. It is marked by pain, stiffness, and functional limitations, and it can have a major impact on an individual's quality of life and daily activities. This study was investigating the effectiveness of combining Cyriax Deep Transverse Friction Massage (DTFM) with standard physiotherapy in lateral epicondylitis. Conventional physiotherapy approaches, such as strengthening exercises, stretching regimens, ultrasound therapy, and other modalities, are well known for their effectiveness in relieving symptoms and restoring function in lateral epicondylitis. However, when paired with these conventional methods, Cyriax DTFM a specialist manual therapy technique designed to break down adhesions, reduce inflammation, and enhance circulation in the afflicted tendon has shown promise for generating synergistic results. By focusing on DTFM's tailored application, this study investigates its ability to expedite healing, minimize pain, and improve functional outcomes. Despite the established therapeutic advantages of Cyriax DTFM, there has been limited study on its use in conjunction with Conventional physiotherapy, particularly in Dhaka. The lack of localized data on this combination technique creates a big gap in our understanding and optimization of tennis elbow therapeutic options in this location. By eliminating this gap, the study's findings could lead to better clinical protocols and a more holistic treatment plan for patients, ultimately improving rehabilitation and quality of life. Also, this study has far-reaching implications for the field of physiotherapy, both locally and internationally. Its mission is to provide important insights into evidence-based approaches for treating lateral epicondylitis and to inspire future guidelines for physiotherapists in Bangladesh and elsewhere.

1.3 Research question:

What is the effectiveness of Cyriax DTFM along with conventional physiotherapy among the patients with lateral epicondylitis?

1:4 Objectives of the study

1:4:1 General objectives:

- To assess the effectiveness of Cyriax DTFM along with conventional physiotherapy among the patients with lateral epicondylitis in Dhaka City.

1:4:2 Specific objectives:

- To determine the degree of wrist joint producing pain at vigorous wrist extension of the participants using NPRS before and after intervention.
- To assess the pain intensity during a strong grip and repeated movement before and after introducing Cyriax DTFM.
- To evaluate the functional outcomes of the participants using TEFS before and after intervention.
- To explore the socio demographic status and medical information of the participants.

1:5 Hypothesis:

1:5:1 Null hypothesis (Ho):

Cyriax DTFM is not effective along with conventional physiotherapy among the patients with lateral epicondylitis.

Ho: $\mu_1 - \mu_2 \neq$ or $\mu_1 \neq \mu_2$

1:5:2 Alternative hypothesis (Ha):

Cyriax DTFM is effective along with conventional physiotherapy among the patients with lateral epicondylitis.

$Ha = \mu_1 \leq \mu_2 \neq 0$ or $\mu_1 \neq \mu_2$

Were,

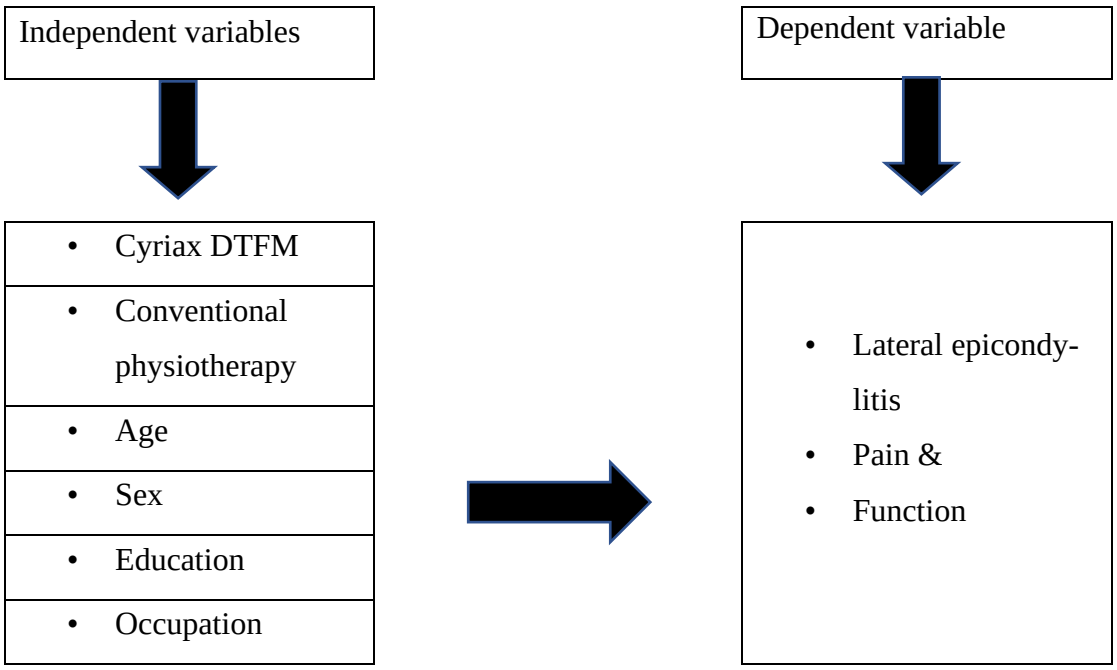
Ho= Null hypothesis

Ha= Alternative hypothesis

$\mu 1$ = mean difference in initial assessment

$\mu 2$ = mean difference in final assessment

1:6 LIST OF VARIABLES:



1:7 Operational definition

Lateral epicondylitis:

A clinical evaluation of tennis elbow, also called lateral epicondylitis, reveals that the condition is characterized by pain and soreness over the lateral side of the elbow, trouble with functional tasks, and positive results from the Cozen, Mill's, or resisted middle finger extension tests (Nusrat Zahan. 2012, p. 22).

Cyriax DTFM:

Deep friction massage is a particular kind of connective tissue massage that was created by James Cyriax. Its primary objective is to prevent the formation of adherent scars while maintaining the mobility of soft tissue components like muscles, ligaments, and tendons (Ashfaquzzaman. 2020, p. 1175).

Conventional Physiotherapy:

Conventional physiotherapy is a physiotherapeutic intervention that are widely accepted and commonly practiced by the medical community (Faruki. 2015, p. 45).

Numerical pain rating scale:

A pain scale is used to measure a patient's degree of pain as well as other parameters. Pain scales are a common medical communication tool and are used in a wide range of medical contexts. Pain scales are necessary to enhance (Nusrat Zahan. 2012, p. 22).

Tennis Elbow Functional Scale:

The Tennis Elbow Functional Scale (TEFS) is a measure for evaluating functional limits and pain associated with lateral epicondylitis, also known as tennis elbow. It contains of items that assess the level of difficulty encountered during daily activities that require gripping or wrist movements. Responses are usually measured on a Likert scale, with higher scores indicating greater impairment. This scale is frequently used in clinical and research settings to assess treatment outcomes (Rompe & MacDermid. 2007, p. 54).

CHAPTER: II LITERATURE REVIEW

The lateral epicondyle, which is the site of the single origin of the muscles that extend the ends of the wrist and fingers, is the source of "tennis elbow" or lateral epicondylitis, a pain syndrome. Tennis elbow is the term used to describe pain that is located directly above the lateral epicondyle or in the common extensor group of wrist muscles at its beginning (Trivedi et al. 2014, p. 488). The common extensor tendon, which connects the forearm to the humerus, becomes weaker when a chronic overuse injury known as lateral epicondylitis (LE) occurs (Patel et al. 2023, p. 31).

Tennis elbow," or lateral epicondylitis, typically affects middle-aged people without a gender predisposition. It affects 1% to 3% of people and is the most prevalent elbow joint ailment (Alfonso et al. 2016, p. 465). Dr. Viswas, it often affects the dominant arm. In the 30- to 60-year-old age range, the frequency rises quickly to 19%, with more severe and enduring effects in women. In the general population, the prevalence rate is 1-3 percent (Viswas et al. 2012, p. 407).

According to the mass of the common extensor muscles, patients report pain that radiates and is primarily felt on the anterior and bony surface of the upper portion of the lateral epicondyle. agony comes in a wide variety of forms, from minor, intermittent discomfort to severe, persistent agony that keeps you from sleeping. It is produced by the contraction of the wrist, finger, and supinator muscles against resistance (Alfonso et al. 2016, p. 465).

This clinical state is characterized by fibrosis and recurrent tiny tears. It is sometimes referred to as an inflammation of the extensor communities' muscles at the elbow's medial epicondyle and the origin of the Extensor Carpi Radialis Braves (ECRB) s (Baker et al. 2009, p. 482). The extensor carpi radialis brevis tendon is the most common site of pathological deviations; pathological changes are also present in the extensor digitorum communis and extensor digitorum longus. There isn't much history for the extensor carpi radialis brevis shares. severe sprains along its tendon from repeated clutching. It has been suggested by some that all forearm motions that could be vulnerable to attack when shearing stresses are applied. Although it is generally accepted that overuse or repetitive microtrauma are the causes of tennis elbow, the exact timing of

the onset of lateral epicondylitis has not been established (Tosti et al. 2013, p. 357). The characteristic features of this degenerative illness are fibrosis and recurring micro-tears in the tissue around the tendinous origin of the extensible carpi radialis brevis (ECRB). the extensor digitorum communis (EDC) and the carpi ulnaris (ECU) are parts of the stretch muscle known as the extensor carpi radialis longus (ECRL) (Sharath. 2005, p. 25). Prolonged elbow uses or repetitive extensor muscle contractions are the most typical causes. Prolonged overloading of continuous stresses (e.g., heavy lifting, repeated hammering, twisting, scissoring, and backhand stroke endurance in tennis players with insufficient shoulder extensor power) is the source of these injuries. This leads to biomechanical positioning errors (Alam. 2008, p. 60).

Even when the stresses are within strength restrictions, microtrauma can still happen due to the weakening brought on by repetitive loads. Since straight elbow equilibrium results in the highest elbow flexion, it is the most painful. The more you complain, the greater the pain gets (Zeisig. 2008, p. 65). Tennis players who are fatigued can display shaking, misplaced muscles, diminished flexibility, and improper backhand technique (Hutson. 2001, p. 11). Tennis elbow is often diagnosed based primarily on clinical signs and symptoms, but a reliable, scientific evaluation is necessary for the condition's efficient treatment (Mackay et al. 2003, p. 312).

Sornes and pain recurrence following unilateral probing along the lateral epicondyle are the main neurological signs that support the diagnosis of lateral epicondylitis. There has been talk of testing the extensor muscles in the forearm. The two most popular outcome measures pressure pain thresholds and pain-free grip strength typically produce positive results (Vicenzino et al. 2003, p. 407). Sixty-four percent of individuals with tennis elbow involve the extensor palmirosalis brava muscle, and around thirty-five percent involve the extension Digitorum Communities muscle (Raman et al. 2012, p. 26). The tendinous origin of the Extensor Carpi radialis Braves, which is situated in the outer layer of the lateral humeral cortex, may experience microscopic or extraordinarily small rips. These cracks could be deep or superficial (Faisal et al. 2013, p. 212).

Because there doesn't seem to be any periosteal tissue covering the tear, healing at the site of the muscle-bone connection is delayed. Recurrent microtrauma brought on by overuse can cause mechanical twisting of the scar tissue, stress the healing tissue, and consequently cause free nerve endings to fire, which can cause mechanical nociceptive

pain (Khuman et al. 2013, p. 52). Myofascial trigger points in the muscles adhering to the lateral epicondyle could be the cause of pain. Usually, very rapid, practiced, repetitive, and eccentric wrist contractions and grasping motions cause it (Stasinopoulus et al. 2005, p. 677). Tennis elbow is caused by a rupture of the tendon at the musculotendinous junction, and the absence of periosteal tissue around the tendon greatly slows down the healing process (Khuman et al. 2013, p. 52).

The typical symptoms of tennis elbow include discomfort, arm weakness, and muscular atrophy. Their inability to work and the average cost of living are both negatively impacted by their pain and incapacity. Reducing nervousness Reducing inflammation, expediting healing, reducing overload forces, promoting function, maintaining range of motion, and improving endurance are the objectives of treatment for lateral epicondylitis (Lee et al. 2014, p. 1040).

Acute tennis elbow is defined by Cyriax (1936) as acute soreness that occurs after indirect damage. Subacute pain is the second type, which is brought on by indirect damage and appears gradually after vigorous arm movement. The third is chronic occupational pain. This kind usually affects elderly individuals and takes one or more months to develop. The fourth is discomfort from post-direct trauma, which is caused by direct injury to the lateral epicondyle. According to the Location of participation, tennis elbow can be classified into four types. These are Type 1: inflammation at the supracondylar ridge Type 2: teno periosteal junction, and Type 3: the tendon body, and Type 4: a muscular abdomen (Kesson et al. 1998, p. 52).

Degeneration of the wrist's common extensor tendon has been proposed as the primary risk factor for tennis elbow (Silvestrini et al. 2005, p. 341). Breaking the ligament at the musculotendinous junction can result in tennis elbow, and the healing process is slowed down since there is no periosteal tissue to cover it (Khuman et al. 2013, p. 45). A tendon tear at the root of the lateral epicondyle's extensor muscles is one pathological sign of lateral epicondylitis (Trividi et al. 2014, p. 488).

There are microscopic and macroscopic tears in the periosteum of the lateral humeral cortex near the tendinous origin of the Extensor Carpi Radialis Braves. These tears can be profound or superficial (Faisal et al. 2013, p. 110). Since there is no periosteal tissue underneath, the tear at the muscle-bone junction heals slowly. The regenerated tissue may be overworked by ongoing micro trauma from abuse, which can twist scar tissue

mechanically and cause free nerve endings to fire, resulting in mechanical nociceptive pain (Khuman et al. 2013, p. 52).

Despite being a popular term for pain in the lateral epicondyle, tennis elbow only affects 10% of people (Smedt et al. 2007, p. 419). Regular microtrauma can cause the periosteum to expand, which can result in adhesion and the formation of granulation tissue. Except in situations involving external trauma, swelling is uncommon. During passive range of motion and at rest, the arm is pain-free. The high concentration of free nerve terminals in granulation tissue may be the cause of the greater discomfort while probing (Cyriax. 1936, p. 921). The most prominent areas of soreness are the lateral forearm and the front portion of the lateral epicondyle. The collateral ligament between the radial bones may be quite painful to the touch when the elbow is under varus stress. The neurological and articular issues are common, notwithstanding the possibility of a decrease in grip strength. Severe symptoms include pain at rest and a variety of movement restrictions in the flexion and extension extremities. The extensor carpi radialis brevis, the junctional tissue at the common extensor muscle origin of the lateral epicondyle, is usually affected by the lesion (Cyriax. 1936, p. 940). More specifically, during radial extension, extensor carpi radialis longus or extensor carpi radialis brevis will be visible. When the extensor carpi radialis brevis is used, middle finger extension is painful and challenging (Wadsworth et al. 1987, p. 621).

Anterolateral discomfort would result from inflammation of the extensor carpi radialis brevis tissue, whereas sensitivity above the epicondyle would suggest involvement of the extensor carpi radialis longus. The extensible carpi ulnaris will be activated by ulnar extension. The extensor digitorum communis and extensor carpi ulnaris are rarely involved in radial and ulnar extensions, according to numerous scholars (Cyriax. 1936, p. 940).

Radial tunnel syndrome, or distal elbow osteoarthritis, most fractures, and cervical injuries are among the differential causes of tennis elbow. Even while imaging and diagnostic testing can be helpful in assessing the likelihood of a differential diagnosis, tennis elbow produces confusion. Radio capitellar, chondromalacia, elbow instability, loose bodies, cervical radiculopathy, (C6 or C7), and posterior interosseous nerve compression are some of these examinations (Taylor. 2012, p. 393).

During a physical examination, patients usually complain of pain over the bony prominence on the outside of the elbow, which is situated slightly anteriorly in front of the hand and proximal to the lateral epicondyle closer to the hand (Ahmad et al. 2013, p. 1164). A comprehensive elbow evaluation includes palpation, range-of-motion testing, neurological assessment, examination of related areas, and other specialist procedures. Some texts give a detailed explanation of the elbow examination; however, this is outside the scope of this page (Magee. 1997, p. 286).

The tennis elbow test involves the doctor stabilizing the patient's extended elbow in his or her hand and placing the thumb of that hand on the patient's lateral epicondyle. The patient makes a fist, pronates the forearm, deviates radially, and extends the wrist as the physician provides a resistance force at the fist. The test is deemed successful if there is discomfort in the lateral epicondyle area. When the elbow is flexed to a 90-degree angle, patients with more severe forms of tennis elbow experience pain from the same motion. Flexion force applied to the long finger (third digit) extension distal to the proximal interphalangeal joint may cause pain across the extensor muscle mass in the proximal forearm. This finding implies that radial (Green et al. 2006, p. 500).

A thorough examination of the wrist, shoulder, and neck is required when a patient has elbow pain. The aforementioned assessment does not cover elbow issues caused by referred pain that results from the body's attempts to compensate for dysfunction elsewhere (e.g., tennis elbow associated with rotator cuff dysfunction). The doctor asks the patient to move their elbow, wrist, and fingers while applying pressure to the problematic area in order to diagnose lateral epicondylitis. X-rays can be utilized to verify and distinguish between possible pain origins, such as fractures or arthritis, that are unrelated to tennis elbow. Medical ultrasonography and magnetic resonance imaging (MRI) are valuable diagnostic tools; however, they are frequently avoided due to their high cost (Bisset et al. 2005, p. 422).

MRI screening can confirm excessive fluid and water retention in the afflicted area of the elbow, such as the area where the forearm bone and extensor carpi radialis brevis muscles meet. shown that, when done by a trained ultra sonographer, ultrasound may identify more than 70% of cases with lateral epicondylitis (Miller et al. 2002, p. 202). Stated that in order to do the Cozens test, the therapist feels across the lateral epicondyle while holding the patient's elbow in a 90-degree flexion equilibrium with one hand.

While the other hand positions the patient's hand in radial deviation and forearm pronation, the patient is instructed to resist wrist extension in this posture in spite of the therapist's physical opposition. The test is considered positive if there is pain in the lateral epicondyle region or if additional symptoms are reproduced. The doctor conducts the "Mill's test" by pronating the patient's forearm, fully flexing the wrist, and extending the elbow while using one hand to palpate the patient's lateral epicondyle. The recurrence of insertion site pain indicates a positive test result (Valdes et al. 2013, p. 43).

Demonstrated how the "Maudsley's test" examiner palpates the patient's lateral epicondyle after the patient declines to lengthen the third digit of their hand, putting stress on the extensor digitorum muscle and ligament. Pain above the lateral epicondyle of the humerus indicates a positive test result (Tuomo et al. 2002, p. 357). Electromyography and nerve conduction studies are used to evaluate suspected nerve compression issues. Although these tests can be helpful in verifying a diagnosis, they are not very sensitive. Consequently, clinical judgment should be applied while selecting a therapy plan (Field et al. 2014, p. 353).

Reducing anxiety Reducing inflammation, encouraging healing, lowering overload forces, enhancing function, maintaining mobility, and enhancing strength, endurance, and flexibility are all objectives of lateral epicondylitis treatment (Lee et al. 2014, p. 1040). Assessment, activity modification, and the application of cold and lateral epicondylitis therapies are the initial phases of physiotherapy treatment (Faisal et al. 2013, p. 110). Treatment without surgery is the mainstay of care. These days, bracing, injections, physical therapy, shockwave therapy, non-steroidal anti-inflammatory drugs (such Ibuprofen), and activity adjustment (avoid unpleasant occupations) (D'Vaz et al. 2006, p. 566).

Although low-level laser therapy, massage, and acupuncture have been used anecdotally to help manage pain, there is no scientific proof that these treatments are beneficial for lateral epicondylitis (Zhou et al. 2014, p. 621). Anti-inflammatory medications lessen synovitis, or inflammation in the elbow joint and surrounding tissues (Labele & Guitbert. 2004, p. 257). Reduction of this inflammation reduces pain. In one large study, 129 participants received anti-inflammatory medications or a placebo for 28 days. While people who used anti-inflammatory drugs reported improved pain relief, they

also had more digestive issues. Long-term progress was nonexistent overall. Other studies have shown that while relaxation and medicine may help in the short term, they have little effect on the normal course of lateral epicondylitis (Ahmad et al. 2013, p. 1158).

Said that the use of injections to treat lateral epicondylitis is still up for dispute. Injections of corticosteroids have inconsistent published results. In one study, 185 injection recipients were analyzed. Physical therapy or observation at six weeks showed significant improvements in the steroid-treated group. Recurrence rates were lower in individuals who had physical therapy or monitoring (9% and 17%, respectively) than in those who received steroid injections (48%), according to long-term monitoring (Smedt et al. 2007, p. 819).

Other studies at one and six months showed no improvement (Rodriguez. 2014, p. 265). Physical therapy continues to be one of the most popular and successful types of treatment. The goal of physical therapy has historically been to lengthen the affected muscles while also enhancing forearm strength, flexibility, and endurance. Recent research suggests that eccentric workouts, which involve a variety of exercise forms, may help reduce symptoms. These workouts aim to strengthen and lengthen the muscles and tendons in the forearm by utilizing a range of flexible bars. According to one study, participants' discomfort, strength, and overall functional evaluations all improved when eccentric activities were included (Tyler et al. 2010, p. 384). Cyriax recommended treating lateral epicondylitis by combining deep transverse friction massage with mill manipulation (Stasinopoulos et al. 2004, p. 677).

Cyriax Physiotherapy The position of the patient the patient sits with their elbow bent at a straight angle and fully supinated. With one hand at the patient's wrist, the physiotherapist holds the patient's forearm in a supinated posture. The afflicted area is directly over the pad of the thumb, middle finger, or index finger. To improve self-stability, the patient and the therapist should both use their remaining fingers. Without any lubrication, the patient's skin must shift to accommodate the therapist's fingertips. Initially, the therapist applies light pressure while moving the skin above the lesion site back and forth in the opposite direction of the component's fibers. After the two-minute massage, there is a one- or two-minute break, and then (Prabhakar et al. 2013, p. 156).

Since tendons need to be both strong and flexible, strengthening and stretching activities are the most crucial parts of exercise regimens for the treatment of lateral epicondylitis. The purpose of the stretching exercises is to increase the flexibility of the wrist extensor group. Once the wrist's range of motion is equivalent to that of the unaffected side, start and maintain these activities. In order to promote proper tissue remodeling, these programs ought to be initiated early in the course of treatment. To avoid exacerbating symptoms, early strength training should emphasize low load and high repetition training programs. The ideal way to stretch the Extensor Carpi Radialis Brevis tendon is to flex the wrist, pronate the forearm, extend the elbow, and (Viswas et al. 2012, p. 210).

Stretching exercises are one of the most popular physical therapy treatments for tennis elbow (Zeisig. 2008, p. 56). Static stretching exercises help restore normal range of motion, reduce pain, and strengthen grips (Lee et al. 2014, p. 1040).) discovered that progressive stretching exercises were more advantageous than ultrasonography in a small experiment that compared the two. Both groups showed improvement following 6–8 weeks of treatment (Jones. 2009, p. 113).

There are three types of workouts that can be used to strengthen soft tissue structure: eccentric, concentric, and isometric (Stasinopoulos et al. 2005, p. 677). convinced that early on, isometric strengthening exercises are a beneficial therapeutic strategy. The most effective treatment for tennis elbow is eccentric exercise (Park et al. 2008, p. 742). The therapist suggests eccentric exercise alone for the injured tendon (Stasinopoulos et al. 2005, p. 677). According to Thomas (2010), lateral epicondylitis can be treated using deep transverse friction massage (DTFM), a soft tissue mobilization technique that stretches and releases the problematic tissue. The effectiveness of DTFM has been the subject of relatively few investigations (Jones. 2009, p. 113).

When the extensor muscles are used proactively, manipulation works. Mills manipulation in lateral epicondylitis involves breaking down the adhesions to increase the size of the scar tissue (Alam. 2008, p. 30). asserted that people with lateral epicondylitis can benefit from using the Flex bar as an eccentric workout. A fantastic illustration of true evidence-based treatment in physical therapy, this resistance apparatus is simple to use at home. Every day, three sets of fifteen are used to complete the exercise's five steps. It Each repetition in the 15-repetition set takes four seconds to complete. You can take

a 30-second break. Patients continue after doing three sets of fifteen. to a Flex Bar that is a different color and has a higher eccentric resistance. Following a Following ten clinic visits and an average of seven weeks, the patient will have a resolution of symptoms. Until this problem is fixed, the treatment plan should (Phil. 2010, p. 10).

Therapeutic ultrasonography (US) has become the most widely used technology in recent decades since physiotherapists use it to treat common musculoskeletal diseases like LET (Dimitrios et al. 2013, p. 14). Tennis elbow pain-relieving methods are triggered by lateral epicondylitis, which is brought on by TENS (Transcutaneous Electrical Nerve Stimulation) (Zeisig. 2008, p. 56).

CHAPTER: III METHODOLOGY

3.1 **Study design**

Identify The research employed a quasi-experimental design and was quantitative in nature. In this study, one group participated in every phase of the experiment and received an intervention. There was no control group in this design so that the experimental group could not be compared to it. A quasi-experimental design is different from a real experimental design in that it does not employ randomization or a control group while adjusting an independent variable to see if it affects a dependent variable. Researchers who are examining the efficacy of treatment strategies and approaches may find these sets helpful. All three are necessary for an experiment: manipulation, randomization, and control.

But none of the three was included in our investigation. Therefore, this study was a quasi-experimental research design. Here, standard physiotherapy treatment such as Cyriax DTFM was applied to the patient with lateral epicondylitis. To the effectiveness of this treatment approach, Numeric pain rating Scale used as a measurement tool for measuring the pain intensity in several functional positions.

Quasi-experimental design (Pretest-Posttest):

The pretest-posttest design

The design could be shown by-

E	**O_1**	**X_1**	**O_2**	**(One group)**

O1= Pretest, O2= Posttest, X1= Treatment

3.2 Study area

The areas of study were Academy of physiotherapy pain and rehabilitation center, and Elite physiotherapy and Rehab Zone, Mirpur, Dhaka.

3.3 Study Place:

The present study was conducted at Saic College of Medical Science and Technology (SCMST) at Mirpur, Dhaka.

3.4 Study period:

The study period was one year. (September 2023 to August 2024).

3.5 Study population:

The population of this study was patients with lateral epicondylitis at the Academy of physiotherapy pain and rehabilitation center, and Elite physiotherapy Rehab Zone, in Mirpur, Dhaka.

3.6 Sample size:

The sample size for the study was 10 patients with lateral epicondylitis.

3.7 Eligibility criteria:

3:7:1 Inclusion criteria:

- Participants without a history of corticosteroid injections, oral NSAIDs, or physiotherapy interventions (Nusrat. 2012, p. 22).
- The people without any abnormalities of the elbow or wrist (Nusrat., 2012, p. 22).
- Age group: 20-60 years old (Faruki. 2015, p. 51).
- Both male & female patients are included (Faruki. 2015, p. 51).
- Tenderness when the lateral epicondyle of the humerus is palpated (Faruki. 2015, p. 51).
- Voluntary participants (Nusrat. 2012, p. 22).

3:7:2 Exclusion criteria:

- Patients with clinical disorder which may became worsen with cyriax DTFM, such as skin disease, dermatitis, eczema.

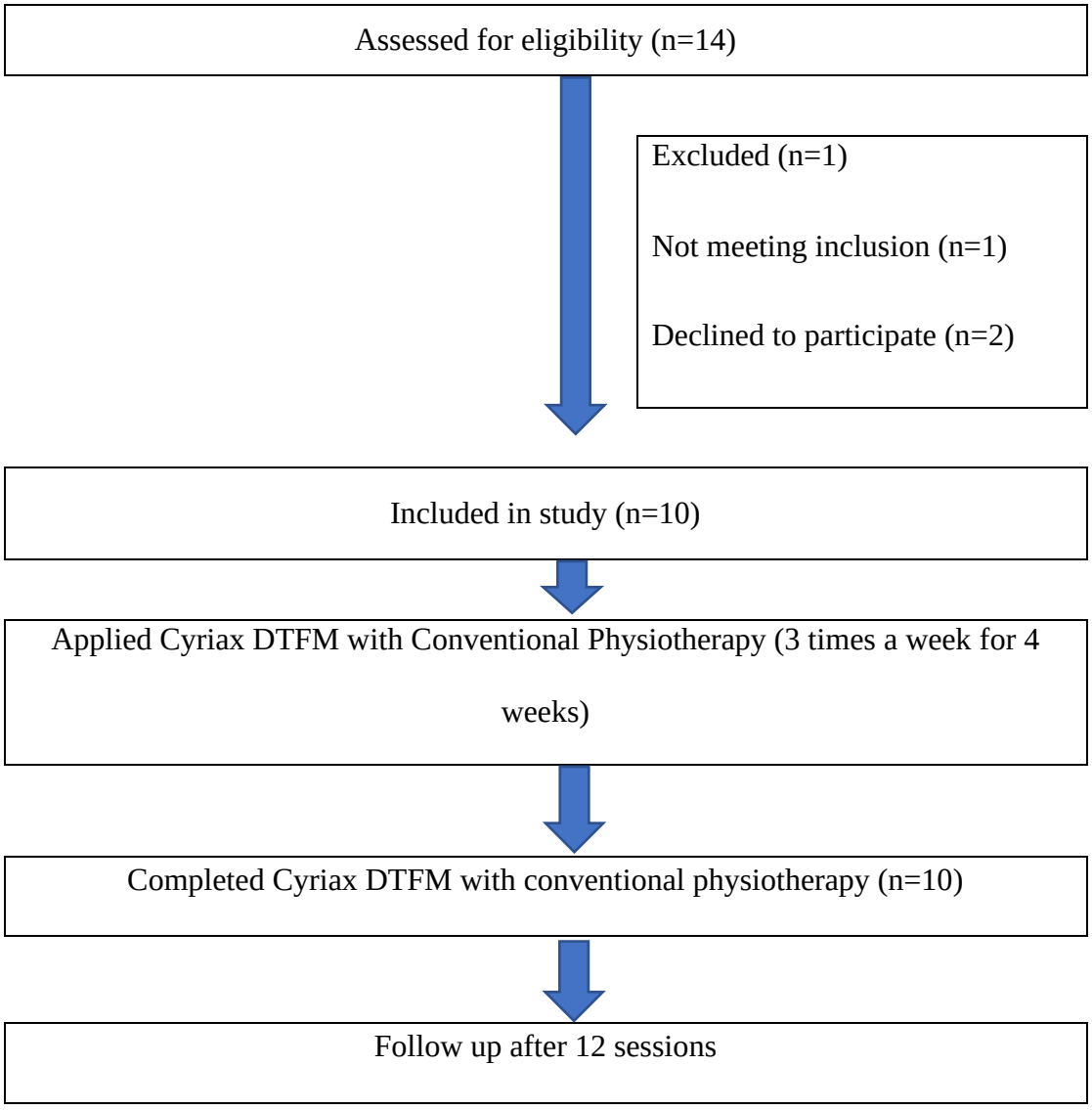
- Subjects with any kind of abnormality in the wrist and elbow on the afflicted side.
- Cervical radiculopathy as well as any other malfunction of the upper limb.
- Previous trauma, surgery & acute infection to the elbow region.
- Neurological impairments.
- Subjects who were unwillingness to participate.

3.8 Sampling technique:

Convenience sampling was used to select 10 lateral epicondylitis patients from the Academy of Physiotherapy Pain and Rehabilitation Center, Elite Physiotherapy Center, in Mirpur.

The researcher created inclusion and exclusion criteria and chose study volunteers who met these requirements (Depoy & Gitlin, 1998). Based on the researcher's view, the convenience sampling approach involves selecting a sample that reflects the majority of the population under study. Following a correct diagnosis by a physician and occupational therapist, the samples were collected for this study (Hicks. 1999, p. 80).

3.9 CONSORT framework:



4:0 Method of data collection:

4:0:1 Technique of data collection:

Face to face formal interview technique was used to collect data from the selected patients with Lateral Epicondylitis.

For measuring the intensity of the pain was used by a Numeric Pain Rating Scale, and measuring for functional outcome was used by Tennis Elbow Functional Scale (TEFS) to collect data from the selected patients with Lateral Epicondylitis.

4:0:2 Instrument of data collection:

The pretested structured questionnaire was used as an instrument of data collection. The questionnaire had 3 parts. The first part contained questions on sociodemographic characteristics. The second part included questions on pain related questions (NPRS). The third part contained questions on the regular activities related.

Numeric pain rating Scale

In this study, researcher used a numeric pain rating scale for measuring the intensity of the pain (Mann et al., 2003), experienced in patients by using the numeric scale to categorize the pain status. It is known as the Numeric Pain Rating Scale. The scale is a 10cm long scale ranging from 0-10.

Rating	Pain Level
0	No pain
1-3	Mild pain
4-6	Moderate pain
7 – 10	Severe pain

Table-1: Numeric Pain Rating Scale

Tennis Elbow Functional Scale:

The Tennis Elbow Functional Scale (TEFS) is a measure for evaluating functional limits and pain associated with lateral epicondylitis, also known as tennis elbow. It contains of items that assess the level of difficulty encountered during daily activities that require gripping or wrist movements. Responses are usually measured on a Likert scale, with higher scores indicating greater impairment. This scale is frequently used in clinical and research settings to assess treatment outcomes (Rompe & MacDermid. 2007, p. 78).

4:1 Data collection procedure:

The participant and the data collector agreed on a time and date that worked for him. The participant was initially briefed by the data collector on the contents of the consent form. Diagnoses and referrals are made by qualified doctors and physiotherapists, and all participant names are coded to ensure anonymity. For lateral epicondylitis, each subject received physiotherapy. Functional outcome score and numerical pain assessment scores were used to evaluate the participant. The research participants were specifically selected for the investigation. The patient with Lateral Epicondylitis's pain, and regular activities were then measured by the data collector. At the Academy of Physiotherapy Pain and Rehabilitation Center, & Elite Physiotherapy and Rehab Zone, the participant received treatment as usual; they continue their treatment according to their treatment plan. Three days a week for 4 weeks were given to each participant.

4:2 Informed Consent

The researcher obtained consent to participate from every subject. A signed informed consent form was received from each participant. The participants were informed that they have the right to meet with indoor doctor if they think that the treatment is not enough to control the condition or if the condition become worsen. The participants were also informed that they were completely free to decline answering any question during the study and were free to withdraw their consent and terminate participation at any time. Withdrawal of participation from the study would not affect their treatment in the physiotherapy department and they would still get the same facilities. Every subject had the opportunity to discuss their problem with the senior authority.

4:3 Intervention:

- **Conventional treatment**

- After identifying the area of pain, the ultrasound was applied in continuous mode, 3 MHz with the intensity of 1 W/cm^2 in slow circular movements or in a longitudinal pattern was performed three times a week, every other day, for a total of 12 sessions over four weeks.
- The treatment area was be exposed and ice pack fomentation was applied for 10 to 20 mins.
- Stretching exercises were be given (30 seconds, 10 stretches every session, once per day),
- isometric for wrist flexion, wrist extension, wrist radial deviation, wrist ulnar deviation (3 to 5 second hold and 10 repetition/ session once daily), and praying position stretches for 10 to 30 seconds hold and 10 repetition/session once daily.
- Active Release Technique:

  -Patient position:

  The patient was sitting with the forearm in mid-prone, elbow extends, wrist in neutral position and resting on the treatment table. Then the therapist was applying pressure to the muscles and the patient was extend the elbow, pronate the forearm, and flex the wrist from a shortened to a lengthened position as the therapist holds the muscles. Following which, the therapist was adjust the pressure proximally in an effort to break up adhesions within and between muscle planes.

  -Dosage: A total of 12 sessions of 10 minutes each were be performed, three times a week, over four weeks.
- Mill's manipulation:

  The subject arm was be held under the elbow's crook while the shoulder joint was medially rotated and pronated at the forearm. The hand that holds the elbow in the crook was transfer to the back of the elbow joint, and the patient's elbow was stretched until all the slack in the tendon had been picked up while preserving full wrist flexion and pronation. Then, while side-flexing away from the arm, the therapist was delivering a small-amplitude, high-velocity thrust while neatly pushing downward with the hand over the patient's elbow.

  -Dosage:

A total of 12 sessions was performed, three times a week, for four weeks.

- **Cyriax DTFM technique:**

Patient position:	• The patient is sitting on a chair while holding a pilo.
Deep Transverse Friction Massage:	• DTFM is to be immediately followed by manipulation as part of the Cyriax physiotherapy program. The thumb's side tip is going to be forced backward on the teno-periosteal junction during DTFM. This pressure may be maintained as the therapist applies DTFM in the direction of their fingers, which can be placed on the opposite side of the elbow to apply counterpressure. The tendon is going to be prepared for Mill's manipulation after the numbing effect is complete.
Dosage:	• 3 times a week for 4 weeks for a total of 12 treatment sessions.
Duration:	• 10 minutes.

Figure: Deep transverse friction massage

4:4 Management of data:

4:4:1 Data editing: After collection of data the questionnaires, Numeric Pain Rating Scale, Tennis Elbow functional scale etc. were checked for error or any inconsistency. Necessary corrections were made accordingly.

4:4:2 Data entry:

All responses were coded and entered into the computer for analysis.

4:4:3 Data analysis:

Data were analyzed by SPSS version 25 using descriptive analysis for sociodemographic variables. Wilcoxon signed rank test was used to assess pre-test and post-test intervention within group and Wilcoxon Signed Rank test. Microsoft Excel 2021 was used for the bar diagram and chart.

Wilcoxon Test:

This test is also known as the "Wilcoxon signed rank test," and it is an alternative to the paired t test. When the data is not normally distributed, the Wilcoxon test is necessary. When there are just two measures to compare from the same case, and the data are normally distributed or the sample size is large, we use a paired samples t test (also known as a related sample t test). Wilcoxon Test for Large Samples (n>25) In case of large sample sizes, ranks are assumed to be normally distributed. In this case, T is replaced by z statistic given as Z = Ws – n (n + 1) 4 √ n (n + 1) (2n + 1) 24 Here, n = number of pairs where differences are not 0 Ws = smallest of absolute values of the sum Z= Value of Wilcoxon signed rank test

4:5 Significant level

In order to find out the significance of the study, the researcher calculated the „p‟ value. The „p‟ values refer the probability of the results for experimental study. The Word probability refers to the accuracy of the findings. A „p‟ value is called level of significance for an experiment and a „p‟ value of (Depoy and Gitlin, 2019)**.**

4:6 Ethical consideration

Strict adherence to ethical guidelines is paramount in this study. A formal project proposal has been submitted to the Department of Physiotherapy at Saic College of Medical Science and Technology (SCMST), and approval has been obtained from the Academy of physiotherapy pain and rehabilitation center, & Elite physiotherapy center, of SCMST to conduct the study. This study follows the guidelines set forth by the World Health Organization (WHO) and Bangladesh Medical Research Council (BMRC), ensuring the confidentiality of participant information at all times. Permission to collect data has been obtained from the study area authorities. Each participant was informed about the study before beginning and given written consent. The researcher received verbal and signed an informed consent form to participate in this study from every subject. The participants were informed that they have the right to meet with an outdoor doctor if they think that the treatment is not enough to control the condition or if the condition becomes worse. The participants were also informed that they were completely free to decline to answer any question during the study and were free to withdraw their consent and terminate participation at any time. If the patient wants to withdraw herself from the study, it would not affect their treatment in the physiotherapy department and they would still get the same facilities.

CHAPTER: IV	RESULTS

Socio-demographic information:

4.1 Occupation of participants

In terms of occupation, the majority of participants were service holders, comprising and = 7 individuals or 70% of the sample. The remaining and = 3 participants, accounting for 30%, were housewives. This distribution suggests a greater representation of individuals in the workforce compared to those engaged in household responsibilities.

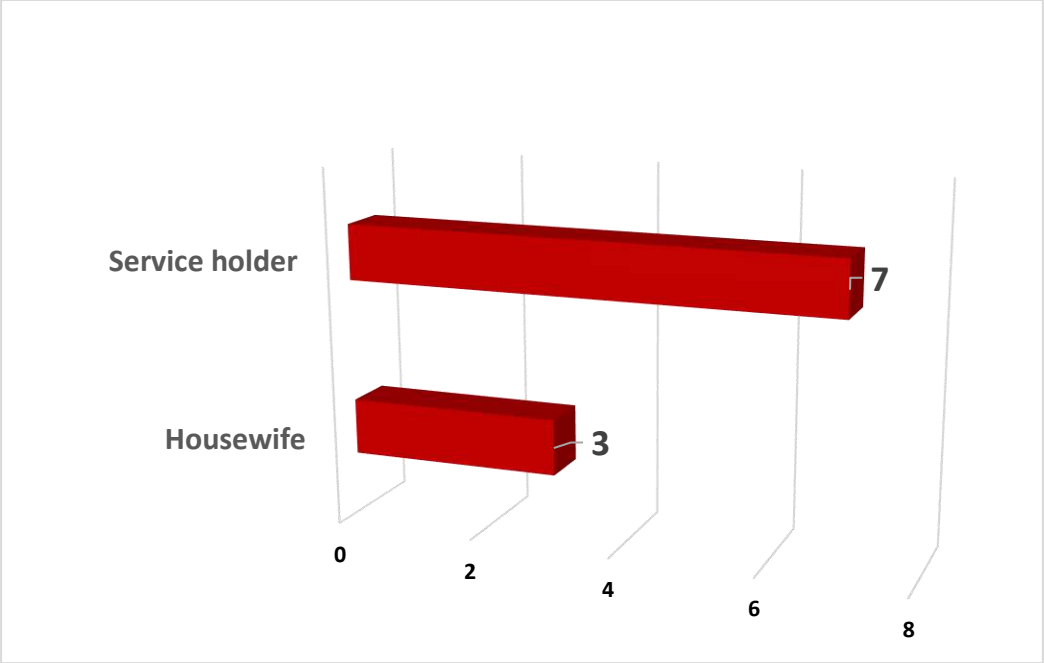


Figure no. 1: Occupation of participants

4:2 Educational qualification of participants

The sample's educational qualifications varied, with the majority holding a Bachelor's degree, accounting for and= 6 individuals or 60% of the participants. Two participants (20%) had completed a Master's degree, while one participant each had completed HSC and SSC levels, representing 10% each. This distribution indicates that most participants have attained at least an undergraduate-level education.

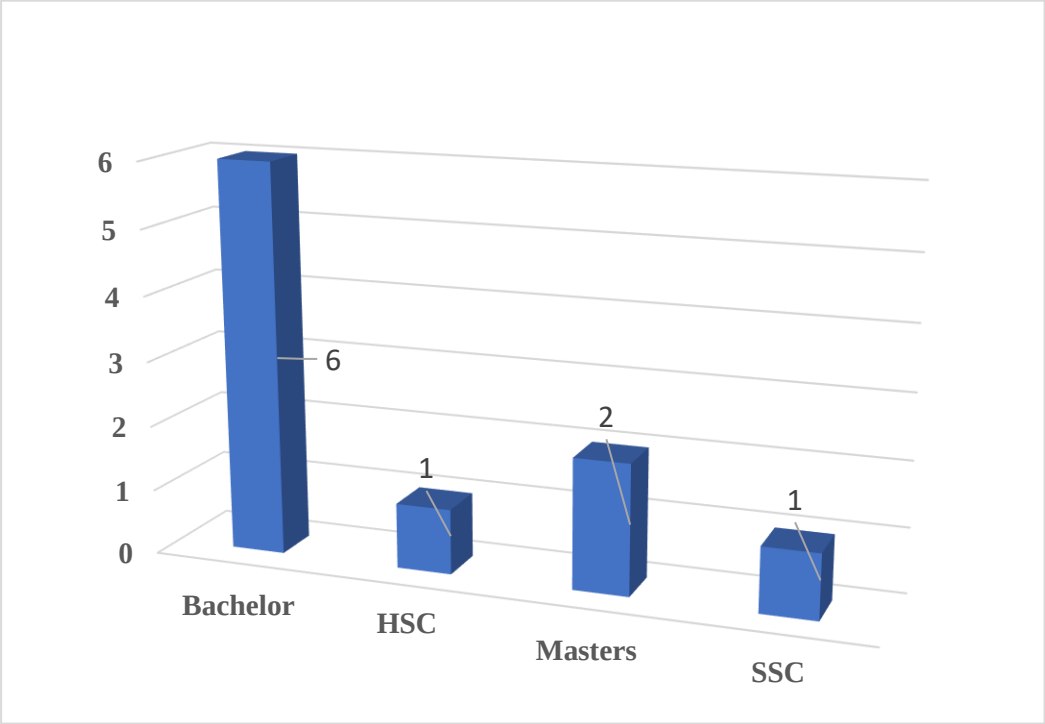


Figure no. 2: Educational qualification of participants

4:3 Living area of participants

The majority of participants, 9 out of 10 (90%), reside in urban areas, while only 1 participant (10%) lives in a rural area. This distribution reflects a predominantly urban-based sample, which may influence the generalizability of findings to urban populations.

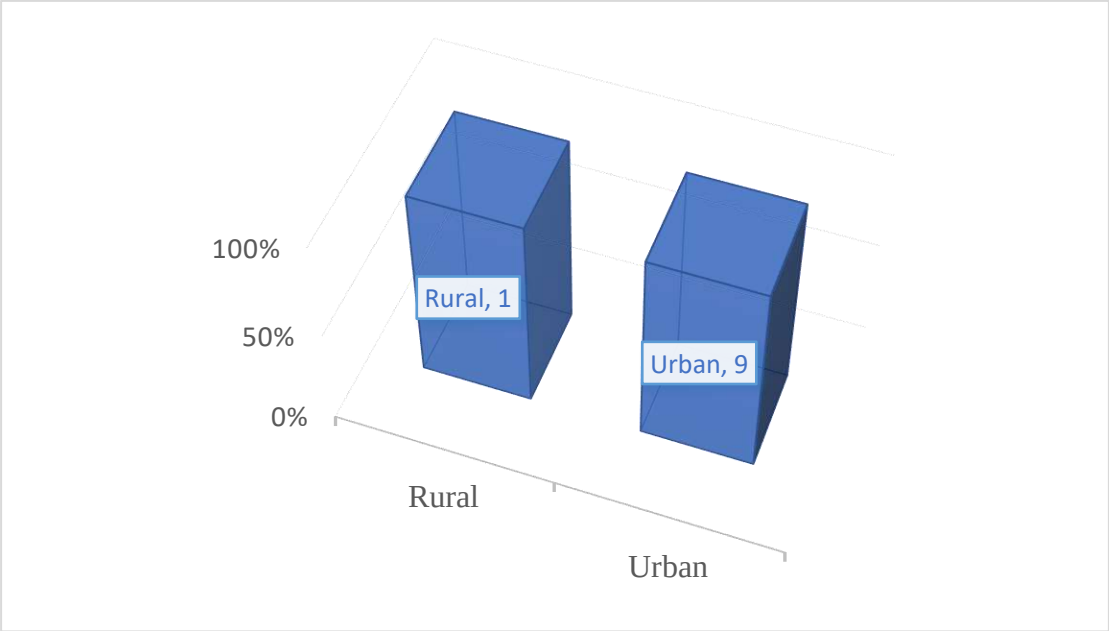


Figure no. 3: Living area of participants

4:4 Family size of participants

In terms of family structure, the sample consists of 6 individuals (60%) from joint families and 4 individuals (40%) from nuclear families. This distribution shows a higher prevalence of joint family arrangements among the participants.

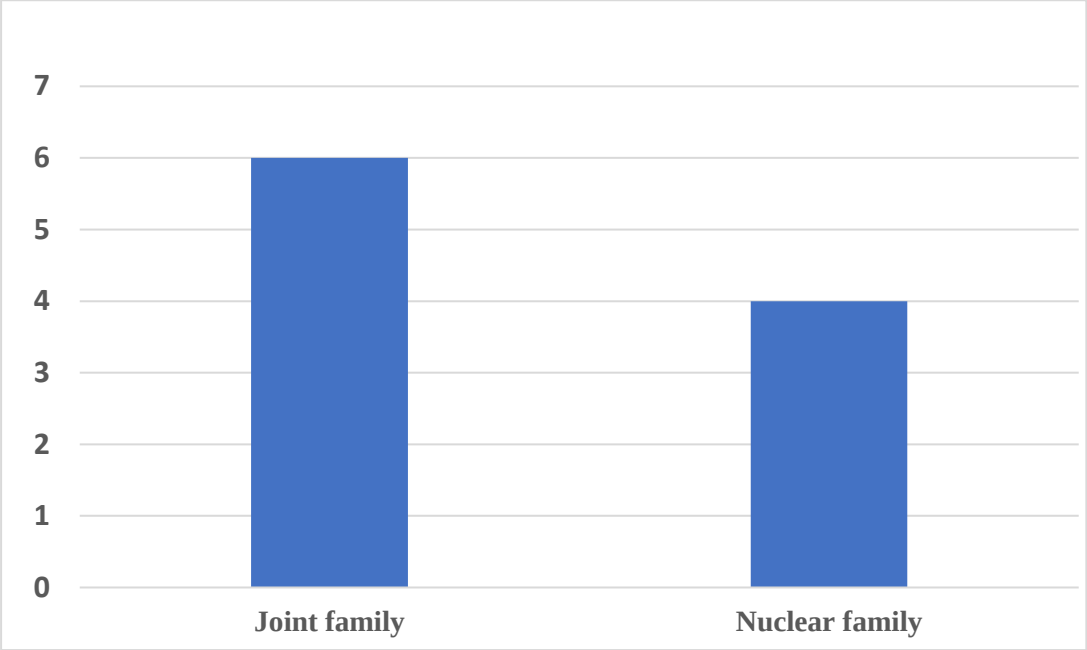


Figure no. 4: Family size of participants

4:5 Co-morbidities of participants

In terms of co-morbidities, the majority of participants (5 individuals, 50%) reported having no co-morbid conditions. Among those with co-morbidities, 2 individuals (20%) have hypertension, while degenerative disc disease, diabetes mellitus, and respiratory disease are each reported by 1 participant (10%). This distribution indicates that half of the sample is free of co-morbidities, with hypertension being the most common condition among those affected.

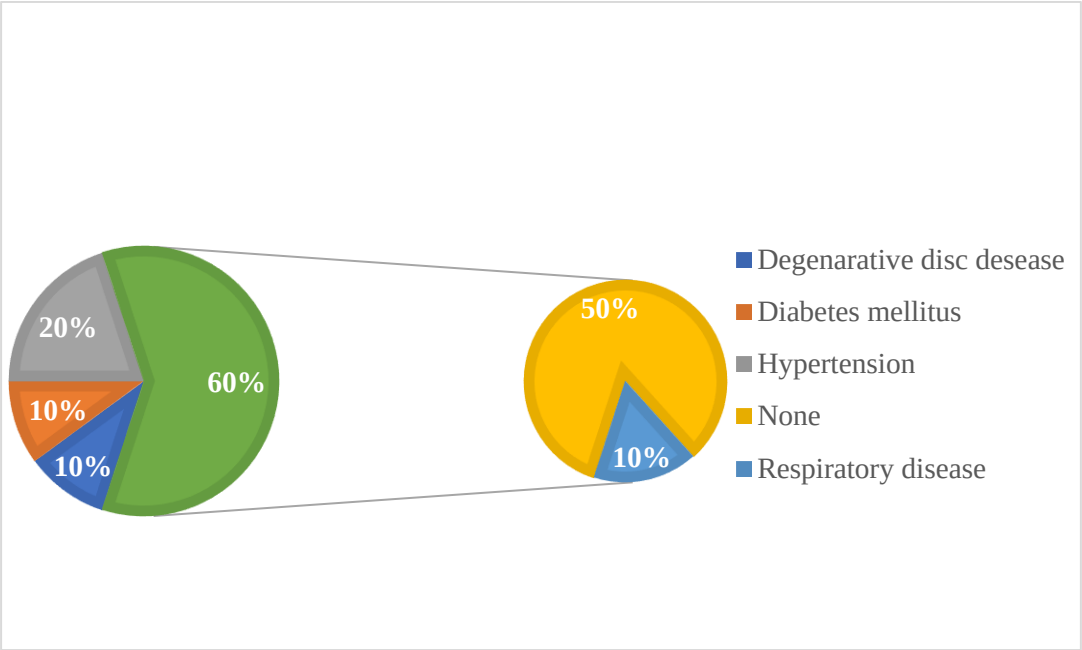


Figure no. 5: Co-morbidities of participants

4:6 Baseline characteristics of participants:

Variables	Frequency (n)	Percentage (%)
Age over all (Mean ± SD) = 46.90 ± 7.65		
Age of the Participants		
30-39	1	10.0
40-49	4	40.0
50-60	5	50.0
Gender of participants		
Male	5	50.0
Female	5	50.0
BMI of participants		
Normal weight	5	50.0
Obesity class I	1	10.0
Obesity class II	1	10.0
Pre-obesity	2	20.0
Underweight	1	10.0
Hand dominant of participants		
Both	3	30.0
Right	7	70.0
Involved Side of participants		
Both	2	20.0
Left	1	10.0
Right	7	70.0

Part of elbow of participants		
Back	8	80.0
Front	2	20.0
Repetitive movement of participants		
No	1	10.0
Yes	9	90.0

4:7 The frequency distribution of participants in the study shows balanced representation across several key variables:

Age of the participants: The age distribution of participants in the study shows that the majority fall within the 50–60year age group, comprising 5 participants. This is followed by the 40–49year age group, which includes 4 participants. The 30–39year age group is the least represented, with only 1 participant. These findings indicate that the study population is predominantly middle-aged, with fewer participants in the younger age bracket

Gender of participants: The sample included an equal distribution of sexes, with 5 males and = 5 females, each representing 50% of the total participants. This balanced composition provides an even representation across sexes, which may help in comparing outcomes without gender-based bias.

BMI of participants: The BMI status of participants indicates that half of the sample, 5 individuals (50%), have a normal weight. Three participants (30%) fall into the pre-obesity category, while one participant each is classified in Obesity Class I and Obesity Class II, representing 10% each. This distribution shows a varied range of BMI statuses, with a notable proportion in the normal weight category**.**

Hand dominant of participants: Out of the total participants and = 3 (30%) reported being ambidextrous, indicating that they use both hands equally. The majority, and = 7 participants (70%), identified as right-handed, meaning they primarily use their right

hand for tasks. These findings highlight a clear preference for right-handedness in the sample, with a smaller proportion of individuals displaying ambidextrous traits.

Involved Side of participants: Around 70.0% of individuals reported having symptoms on their right side, 20.0% on both sides, and 10.0% on the left side.

Part of elbow of participants: Of the people who reported symptoms, 80.0% said they were on the back and 20.0% said they were on the front.

Repetitive movement of participants: Finally, 90.0% of those surveyed said "yes," while 10.0% answered "no."

4:8 Assessment of outcome before and after intervention:

Table no.1: Difference of level of pain of the participants before and after intervention.

Variable	**Pre-test (Mean)**	**Post-test (Mean)**	**Mean difference**	**Significant level**
Resting position	5.7	1.9	3.8	0.004

Item 1: Resting position:

The Wilcoxon test revealed a significant improvement in the resting position scores, with the pre-test mean of 5.7 decreasing to 1.9 in the post-test, resulting in a mean difference of 3.8. This change was statistically significant, with a p-value of 0.004, indicating that the intervention effectively improved participants' resting position.

Table no. 2: Difference of level of pain of the participants before and after intervention.

Variable	Pre-test (Mean)	Post-test (Mean)	Mean difference	Significant level
Vigorous wrist extension	7.3	2.1	5.2	0.005

Item 2: Vigorous wrist extension:

The results of the Wilcoxon test indicated a significant improvement in vigorous wrist extension, with the pre-test mean of 7.3 decreasing to 2.1 in the post-test, resulting in a mean difference of 5.2. This change was statistically significant, with a p-value of 0.005, suggesting that the intervention was effective in enhancing participants' performance in vigorous wrist extension.

Table no.3: Difference of level of pain of the participants before and after intervention.

Variable	Pre-test (Mean)	Post-test (Mean)	Mean difference	Significant level
Strong grasp	7.3	2.2	5.1	0.005

Item 3: Strong grasp:

The Wilcoxon test showed a significant improvement in the strong grasp scores, with the pre-test mean of 7.3 reducing to 2.2 in the post-test, reflecting a mean difference of 5.1. This change was statistically significant, as evidenced by a p-value of 0.005, indicating that the intervention led to a notable enhancement in participants' ability to perform the strong grasp task.

Table no.4: Difference of level of pain of the participants before and after intervention.

Variable	Pre-test (Mean)	Post-test (Mean)	Mean difference	Significant level
Repeated arm movement	6.7	2.7	4	0.004

Item 4: Repeated arm movement:

The Wilcoxon test revealed a significant improvement in the repeated arm movement scores, with a pre-test mean of 6.7 decreasing to 2.7 in the post-test, resulting in a mean difference of 4. This change was statistically significant, as indicated by a p-value of 0.004, suggesting that the intervention effectively enhanced the participants' performance on the repeated arm movement task.

Table no. 5: Difference of level of pain of the participants before and after intervention.

Variable	Pre-test (Mean)	Post-test (Mean)	Mean difference	Significant level
Cozen test	7.5	1.7	5.8	0.005

Item 5: Cozen test:

The results of the Wilcoxon test indicate a significant reduction in the mean scores of the Cozen test from pre-test to post-test. The pre-test mean score was 7.5, which decreased to 1.7 in the post-test, reflecting a mean difference of 5.8. This reduction was statistically significant, with a p-value of 0.005, demonstrating that the intervention had a meaningful impact on improving the measured outcomes.

Table no.6: Difference of level of pain of the participants before and after intervention.

Variable	Pre-test (Mean)	Post-test (Mean)	Mean difference	Significant level
Mid finger extension	6.6	2.1	4.5	0.005

Item 6: Mid finger extension:

The Wilcoxon test indicated a significant improvement in mid finger extension, with the pre-test mean of 6.6 decreasing to 2.1 in the post-test, reflecting a mean difference of 4.5. This change was statistically significant, with a p-value of 0.005, suggesting that the intervention was effective in improving participants' mid finger extension.

Table no.7: Difference of level of pain of the participants before and after intervention.

Variable	Pre-test (Mean)	Post-test (Mean)	Mean difference	Significant level
Turn a door or open a jar	4.9	0.9	4	0.004

Item 7: Turn a door or open a jar:

The Wilcoxon test showed a significant improvement in the ability to turn a door or open a jar, with the pre-test mean of 4.9 decreasing to 0.9 in the post-test, resulting in a mean difference of 4. This change was statistically significant, as indicated by a p-value of 0.004, suggesting that the intervention effectively enhanced participants' ability to perform these tasks.

Table no.8: Difference of level of pain of the participants before and after intervention.

Variable	Pre-test (Mean)	Post-test (Mean)	Mean difference	Significant level
Palpation to the affected side	5.6	1.5	4.1	0.004

Item 8: Palpation to the affected side"

The Wilcoxon test revealed a significant improvement in palpation to the affected side, with the pre-test mean of 5.6 decreasing to 1.5 in the post-test, resulting in a mean difference of 4.1. This change was statistically significant, as indicated by a p-value of 0.004, suggesting that the intervention effectively enhanced participants' ability to perform palpation on the affected side

5:0 Comparison of Tennis Elbow Functional Scale (scale) scores before and after intervention among individuals

Subjects of experimental group	TEFS (pre)	TEFS (post)
P-1	18	8
P-2	21	10
P-3	31	12
P-4	35	16
P-5	34	17
P-6	30	8
P-7	23	6
P-8	35	11
P-9	22	8
P-10	31	12
Mean ± SD	**28.00 ± 6.377**	**10.80 ± 3.584**

5:1 Based on the Wilcoxon signed-rank test results for the difference between pre-test and posttest TEFS score

Posttest-pretest TEFS score	N	Means Rank	Sum of Ranks	p-value
Negative Ranks	10[a]	5.50	55.00	0.005
Positive Ranks	0[b]	.00	.00	
Ties	0[c]			
Total	10			

Negative Ranks (N = 10): This indicates that, out of the 10 participants, all showed a decrease in their TEFS scores from pretest to posttest, with a mean rank of 5.50 and a sum of ranks equal to 55.00.

Positive Ranks (N = 0): No participants had an increase in their TEFS scores from pre-test to posttest, indicating that there were no positive ranks.

Ties (N = 0): There were no cases where the pretest and posttest scores were identical.

p-value = 0.005: Since this p-value is less than the typical alpha level of 0.05, it suggests that the observed decrease in TEFS scores from pretest to posttest is statistically signif-icant.

CHAPTER: V DISCUSSION

The study presented detailed analyses on the efficacy of physiotherapy interventions, including Cyriax Deep Transverse Friction Massage (DTFM) and other modalities, for lateral epicondylitis. This discussion integrates the study findings with existing literature from the uploaded articles and other relevant sources.

The balanced gender distribution (50% male, 50% female) ensures the results are generalizable across genders. The predominance of participants with urban living backgrounds (90%) and higher education levels (60% Bachelor's degree, 20% Master's degree) indicates the accessibility of healthcare resources. Smidt et al. (2003) noted that urban and educated populations often have better access to physiotherapy and rehabilitation facilities, which might influence outcomes positively.

Interestingly, 50% of participants were classified as having normal BMI, aligning with findings by Tabassum Faruqi (2015), which highlighted that normal BMI individuals responded more effectively to physiotherapy interventions than those in obesity classes. However, the presence of comorbidities such as hypertension (20%) and diabetes (10%) necessitate considering tailored interventions, as such conditions can prolong recovery due to vascular and metabolic complications.

The study demonstrated significant reductions in Numeric Pain Rating Scale (NPRS) scores across various activities. For example, pain during vigorous wrist extension dropped from a mean pre-test score of 7.3 to 2.1 post-test, with a p-value of 0.005. This aligns with findings by Puri et al. (2014), who observed similar reductions in pain intensity following physiotherapeutic interventions.

The Tennis Elbow Functional Scale (TEFS) scores also showed significant improvements, with a mean reduction from 28.00 to 10.80 ($p = 0.005$). Such functional gains highlight the synergistic effect of combining Cyriax DTFM with exercise therapy. Faruqi (2015) supported this by emphasizing that the inclusion of stretching and strengthening exercises enhances neuromuscular recovery and reduces overuse symptoms in tendinopathies.

The effectiveness of Cyriax DTFM, as observed in this study, aligns with findings by Anwar et al. (2023), who reported significant improvements in grip strength and pain relief when DTFM was integrated with standard care. Cyriax DTFM's mechanism targeting fibrotic adhesions and promoting microcirculation—addresses the root cause of lateral epicondylitis, as emphasized by Smidt et al. (2003) in their systematic review Furthermore, the significant improvement in mid-finger extension (mean NPRS reduction of 4.5, $p = 0.005$) underscores the targeted benefits of DTFM on extensor muscle groups. This aligns with Nolte et al. (2011), who found similar results in their comparative study of manual therapies for musculoskeletal conditions.

Despite the clear benefits, patient discomfort during Cyriax DTFM was a recurring concern. This is consistent with Ali et al. (2022), who highlighted the need for practitioner expertise and patient counseling to mitigate pain and ensure compliance. Moreover, the study's focus on an urban population may limit its applicability to rural settings, where access to trained physiotherapists and advanced modalities is limited.

The financial implications of prolonged physiotherapy, particularly for individuals with comorbidities, also emerged as a significant barrier. Rasel (2021) emphasized the importance of subsidized rehabilitation programs to address economic disparities in healthcare access.

The results highlight the importance of integrating Cyriax DTFM into multimodal treatment protocols for lateral epicondylitis. Combining manual therapy with ergonomic training and patient education can enhance outcomes and reduce recurrence rates. As noted by Smidt et al. (2003), patient-specific customization of physiotherapy plans, including the choice of modalities and exercise regimens, is crucial for optimal recovery

The study underscores the need for longitudinal research to evaluate the sustainability of pain relief and functional improvements achieved through Cyriax DTFM. Comparative trials with emerging technologies like shockwave therapy and laser interventions could provide additional insights into optimizing treatment strategies. Anwar et al. (2023) highlighted the potential of combining traditional physiotherapy with innovative modalities to enhance patient outcomes.

Furthermore, investigating the role of psychological support and patient adherence in the success of physiotherapy programs could offer a holistic perspective on rehabilitation. As emphasized by Faruqi (2015), addressing psychosocial factors is critical for comprehensive recovery.

This study investigated the efficacy of Cyriax Deep Transverse Friction Massage (DTFM) in combination with other physiotherapy techniques for the treatment of lateral epicondylitis. The findings support the alternative hypothesis (H_1), which maintains that DTFM and other physiotherapy treatments can improve function and reduce pain. However, the null hypothesis (H_0), which maintains that these interventions have no appreciable effect, is contradicted by the observed data. The study results align with existing literature highlighting the efficacy of Cyriax Deep Transverse Friction Massage (DTFM) in reducing pain and improving functionality in lateral epicondylitis. However, cultural and contextual differences, such as treatment accessibility and participant adherence in Dhaka, underscore the need for localized strategies to maximize therapeutic outcomes (Patel et al., 2023).

The study findings corroborate prior research, confirming the effectiveness of Cyriax Deep Transverse Friction Massage (DTFM) in managing pain and improving functional outcomes in lateral epicondylitis. Similar studies, such as those by Patel et al. (2023), emphasize the role of DTFM in breaking down adhesions and reducing inflammation. However, contextual factors such as cultural attitudes, patient compliance, and access to physiotherapy services in urban centers like Dhaka may influence outcomes.

The significant improvement observed in this study highlights the potential for integrating DTFM into conventional physiotherapy regimens to provide a holistic approach to managing musculoskeletal conditions like lateral epicondylitis. Moreover, incorporating individualized patient education and home-based exercise regimens alongside DTFM could enhance long-term outcomes, as suggested by Patel et al. (2023).

Addressing barriers such as limited accessibility to physiotherapy services and ensuring patient adherence to prescribed interventions could significantly impact the broader implementation of DTFM in managing lateral epicondylitis effectively. Moreover, incorporating individualized patient education and home-based exercise regimens alongside DTFM could enhance long-term outcomes, as suggested by Patel et al. (2023). Addressing barriers such as limited accessibility to physiotherapy 57 services and ensuring

patient adherence to prescribed interventions could significantly impact the broader implementation of DTFM in managing lateral epicondylitis effectively.

Limitations of the Study

- **Small Sample Size:** The study included only 10 participants, which limits the generalizability of the findings. A larger sample size would enhance the reliability and external validity of the results.
- **Short-Term Assessment:** The study evaluated outcomes immediately after the intervention, but there was no follow-up to assess the long-term sustainability of pain relief and functional improvements.
- **Homogeneous Demographics:** The participants were predominantly urban dwellers (90%) with higher education levels. This limits the applicability of the findings to rural or less-educated populations who may have different access to healthcare resources.
- **Lack of a Control Group:** The absence of a control or placebo group makes it challenging to isolate the specific effects of Cyriax DTFM from other potential confounding variables, such as natural healing or participant expectations.
- **Subjective Measures:** While the Numeric Pain Rating Scale (NPRS) and Tennis Elbow Functional Scale (TEFS) are valuable, they rely on self-reported data, which can introduce bias or variability based on participants' perceptions.
- **Single-Center Study:** The research was conducted in a single center, which might not represent the diversity of clinical practices and patient populations in other settings.

CHAPTER: VI CONCLUSION & RECOMMENDATION

Conclusion:

This study aimed to evaluate the effectiveness of Cyriax Deep Transverse Friction Massage (DTFM) and its integration into physiotherapy protocols for managing lateral epicondylitis. The findings demonstrate the substantial efficacy of this intervention in reducing pain, improving functional abilities, and enhancing quality of life. Across all Numeric Pain Rating Scale (NPRS) measures, participants experienced significant reductions in pain intensity, with marked improvements observed in functional tasks such as vigorous wrist extension, strong grasp, and mid-finger extension. Similarly, the Tennis Elbow Functional Scale (TEFS) scores highlighted meaningful gains in participants' functional independence, underscoring the transformative impact of the intervention.

The balanced gender distribution and diverse demographic characteristics of participants strengthened the generalizability of the findings. With 70% of participants employed as service holders and the majority possessing higher educational qualifications, the study reflects a population segment that actively utilizes healthcare resources. However, the predominance of urban participants emphasizes the need for further research into accessibility and efficacy in rural or underserved regions.

The study reaffirms existing evidence from literature highlighting the advantages of DTFM as a cornerstone therapy for lateral epicondylitis. By promoting tissue remodeling, disrupting fibrotic adhesions, and reducing nociceptive signaling, DTFM addresses both the symptomatic and underlying causes of tendinopathy. When integrated with stretching, strengthening, and ergonomic training, this approach yields holistic recovery and reduces the risk of recurrence.

Despite these promising results, challenges remain. The discomfort associated with DTFM and variability in practitioner expertise are notable barriers to implementation. Additionally, the financial implications of prolonged physiotherapy sessions may hinder accessibility, particularly for populations with limited economic resources. Nonetheless, the findings provide a compelling case for integrating DTFM into standard care protocols, paving the way for improved clinical outcomes in patients with lateral epicondylitis.

Recommendation:

- To maximize the benefits of DTFM, it should be integrated with other evidence-based physiotherapy modalities. Stretching and strengthening exercises targeting the extensor carpi radialis brevis (ECRB) and extensor digitorum muscles should complement DTFM. This multimodal approach enhances tendon elasticity, neuromuscular control, and overall functional recovery.
- Variability in the application of DTFM is a significant barrier to its widespread adoption. Comprehensive training programs for physiotherapists should focus on standardizing techniques, ensuring that practitioners can deliver consistent and effective care. Certification programs and continuing professional development workshops could address this need.
- While DTFM is effective, its intensity can lead to discomfort during sessions. Incorporating patient education and pre-session counseling can help manage expectations and improve adherence. Techniques to modify pressure or duration based on patient tolerance should be explored to enhance the experience without compromising outcomes.
- The financial burden of physiotherapy is a significant concern, particularly in low-resource settings. Policymakers and healthcare providers should explore subsidized physiotherapy programs or insurance coverage for musculoskeletal conditions. Outreach initiatives in underserved communities can improve awareness and access to effective interventions.
- Emerging technologies, such as extracorporeal shockwave therapy (ESWT) and laser therapy, could be explored in conjunction with DTFM to further optimize outcomes. Tele-rehabilitation platforms offer another promising avenue, enabling remote monitoring and guidance for patients unable to access in-person care.
- Lateral epicondylitis not only impacts physical abilities but also affects mental well-being. Incorporating psychological support through counseling or peer support groups can address the emotional burden of chronic pain, fostering a more holistic recovery process.

CHAPTER: VII REFERENCE

Ahmad, Z., Siddiqui, N., Malik, S.S., Abdus-Samee, M., Tytherleigh-Strong, G. and Rushton, N., 2013. Lateral epicondylitis: a review of pathology and management. *The bone & joint journal*, *95*(9), pp.1158-1164.

Alagaesan, J. and Nirmala, J.G., 2024. Effectiveness of Mulligan Mobilization Technique Versus Cyriax Technique for Lateral Epicondylitis: A Pilot Study. *Indian Journal of Physiotherapy & Occupational Therapy*, pp.*18*.

Anwar, R., Khan, T., & Hussain, A. 2023. Comparative Efficacy of Phonophoresis with Naproxen and Ultrasound Therapy on Pain and Grip Strength in Lateral Epicondylitis. *American Journal of Health, Medicine, and Nursing Practice*. Retrieved from uploaded files *84*(5), pp.678-679.

Baker Jr, C.L., Murphy, K.P., Gottlob, C.A. and Curd, D.T., 2000. Arthroscopic classification and treatment of lateral epicondylitis: two-year clinical results. *Journal of Shoulder and Elbow Surgery*, *9*(6), pp.475-482.

Bisset, L., Paungmali, A., Vicenzino, B. and Beller, E., 2005. A systematic review and meta-analysis of clinical trials on physical interventions for lateral epicondylalgia. *British journal of sports medicine*, *39*(7), pp.411-422.

Bui, C., 2014. Lateral epicondylitis: A novel non-invasive treatment approach. *American Journal of Sports Science*, *2*(5), pp.111-114.

CK, M.F., Sumila, M., Mathias, L. and Ajith, S., 2013. Comparative study on the effectiveness of low-level laser therapy versus phonophoresis in the management of lateral epicondylitis. *Journal of Health and Allied Sciences NU*, *3*(01), pp.35-44.

Crowther, M.A.A., Bannister, G.C., Huma, H. and Rooker, G.D., 2002. A prospective, randomized study to compare extracorporeal shock-wave therapy and injection of steroid for the treatment of tennis elbow. *The Journal of Bone & Joint Surgery British Volume*, *84*(5), pp.678-679.

Cyriax, J.H., 1936. The pathology and treatment of tennis elbow. *JBJS*, *18*(4), pp.921-940.

Degen, R.M., Conti, M.S., Camp, C.L., Altchek, D.W., Dines, J.S. and Werner, B.C., 2018. Epidemiology and disease burden of lateral epicondylitis in the USA: analysis of 85, 318 patients. *HSS Journal®*, *14*(1), pp.9-14.

DePoy, E & Gitlin, LN 2019, Introduction to research E-book: understanding and applying multiple strategies, Elsevier Health Sciences, Dutch academic.

D'Vaz, A.P., Oster, A.J., Speed, C.A., Jenner, J.R., Bradley, M., Prevost, A.T. and Hazle man, B.L., 2006. Pulsed low-intensity ultrasound therapy for chronic lateral epicondylitis: a randomized controlled trial. *Rheumatology*, *45*(5), pp.566-570.

Faruqi, T. T. 2015. Effectiveness of Myofascial Release for the Patients with Tennis Elbow. *Bangladesh Health Professions Institute (BHPI)*. Retrieved from uploaded files

Fernandez-Carnero, J., Fernandez-de-Las-Pena's, C., de la Llave-Rincon, A.I., Ge, H.Y. and Arendt-Nielsen, L., 2007. Prevalence of and referred pain from myofascial trigger points in the forearm muscles in patients with lateral epicondylalgia. *The Clinical journal of pain*, *23*(4), pp.353-360.

Fouda, K.Z. and Dewir, I.M., 2017. Effect of taping techniques on pain and grip strength in patients with lateral epicondylitis. *Med Sci*, *6*(4), pp.663-7.

Green, D, P., and Strickland, J.W., 2006. Hand and wrist; Orthopedic sports medicine: principles and practice. Philadelphia: Saunders, 945–1017.

Hasan, S.A., Rahim, M.A., Siddiq, M.A.B., Hossain, M.S., Taslim, A., Paul, S., Barua, A., Hassan, M.U., Islam, M.M.N., and Haq, S.A., 2009. Study of spectrum of rheumatic diseases in the department of physical medicine and rehabilitation, Chittagong Medical College Hospital, Bangladesh, Journal of Chittagong Medical College Teachers Association, 20(1):6-11.

Jones, V.A.L., 2009. Physiotherapy in the management of tennis elbow: a review. *Shoulder & Elbow*, *1*(2), pp.108-113.

Khuman, P.R., Trivedi, P., Devi, S., Sathyavani, D., Nambi, G. and Shah, K., (2013). Myofascial release technique in chronic lateral epicondylitis: a randomized controlled study. *Int J Health Sci Res*, *3*(7), pp.45-52.

Labelle, H. and Guibert, R., 1997. Efficacy of diclofenac in lateral epicondylitis of the elbow also treated with immobilization. *Archives of family medicine*, *6*(3), p.257.

Lamba, D., Verma, S., Baseera, K., Taragi, M. and Biswas, A., 2012. A study to compare the effects of moist heat therapy with ultrasonic therapy and ultrasonic therapy alone in lateral epicondylitis. *Indian Journal of*, *6*(2), p.41.

Landesa-Pineiro, L. and Leiros-Rodriguez, R., 2022. Physiotherapy treatment of lateral epicondylitis: A systematic review. *Journal of back and musculoskeletal rehabilitation*, *35*(3), pp.463-477.

Lee, S., Ko, Y. and Lee, W., 2014. Changes in pain, dysfunction, and grip strength of patients with acute lateral epicondylitis caused by frequency of physical therapy: a randomized controlled trial. *Journal of physical therapy science*, *26*(7), pp.1037-1040.

Lee, S., Ko, Y. and Lee, W., 2014. Changes in pain, dysfunction, and grip strength of patients with acute lateral epicondylitis caused by frequency of physical therapy: a randomized controlled trial. *Journal of physical therapy science*, *26*(7), pp.1037-1040.

Li, X., Zhou, K., Zhang, E., Qi, Z., Sun, W., Xu, L., Xu, J., Cai, Y. and Wang, R., 2014. Therapeutic effect of electroacupuncture, massage, and blocking therapy on external humeral epicondylitis. *Journal of traditional Chinese medicine*, *34*(3), pp.261-266.

Mackay, D., Rangan, A., Hide, G., Hughes, T. and Latimer, J., 2003. The objective diagnosis of early tennis elbow by magnetic resonance imaging. *Occupational Medicine*, *53*(5), pp.309-312.

Magee, D.J., 1998. Orthopedic physical assessment. *Journal of hand therapy*, *11*, pp.286-286.

Martinez-Silvestrini, J.A., Newcomer, K.L., Gay, R.E., Schaefer, M.P., Kortebein, P. and Arendt, K.W., 2005. Chronic lateral epicondylitis: comparative effectiveness of a home exercise program including stretching alone versus stretching supplemented with eccentric or concentric strengthening. *Journal of Hand Therapy*, *18*(4), pp.411-420.

Miller, T.T., Shapiro, M.A., Schultz, E. and Kalish, P.E., 2002. Comparison of sonography and MRI for diagnosing epicondylitis. *Journal of clinical ultrasound*, *30*(4), pp.193-202.

Nagore, A., Samal, S. and Thakre, V.M., 2023. Effectiveness of active release technique with conventional therapy in the management of lateral epicondylitis: a case report. *Cureus*, *15*(12).

Nagrale, A.V., Herd, C.R., Ganvir, S. and Ramteke, G., 2009. Cyriax physiotherapy versus phonophoresis with supervised exercise in subjects with lateral epicondylalgia: a randomized clinical trial. *Journal of Manual & Manipulative Therapy*, *17*(3), pp.171-178.

Olaussen, M., Holmedal, Ø., Mdala, I., Brage, S. and Lindbæk, M., 2015. Corticosteroid or placebo injection combined with deep transverse friction massage, Mills manipulation, stretching and eccentric exercise for acute lateral epicondylitis: a randomized, controlled trial. *BMC musculoskeletal disorders*, *16*, pp.1-13.

Park, G.Y., Lee, S.M. and Lee, M.Y., 2008. Diagnostic value of ultrasonography for clinical medial epicondylitis. *Archives of physical medicine and rehabilitation*, *89*(4), pp.738-742.

Patel, R. and Contractor, E.S., 2023. To study the effectiveness of Cyriax Mill's manipulation and deep transverse friction versus myofascial release technique on pain, grip strength and functional disability in subjects with lateral epicondylitis: an experimental study. *Int J Health Sci Res*, *13*, pp.20-31.

Pathan, A.F. and Sharath, H.V., 2023. A review of physiotherapy techniques used in the treatment of tennis elbow. *Cureus*, *15*(10).

Pienimäki, T., Tarvainen, T., Siira, P., Malmivaara, A. and Vanharanta, H., 2002. Associations between pain, grip strength, and manual tests in the treatment evaluation of chronic tennis elbow. *The Clinical journal of pain*, *18*(3), pp.164-170.

Prabhakar, A.J., Kage, V. and Anap, D., 2013. Effectiveness of Cyriax physiotherapy in subjects with tennis elbow. *J Nov Physiother*, *3*(3), p.156.

Raman, J., MacDermid, J.C. and Grewal, R., 2012. Effectiveness of different methods of resistance exercises in lateral epicondylitis—a systematic review. *Journal of Hand Therapy*, *25*(1), pp.5-26.

Rodriguez, J.A., 2014. Corticosteroid versus platelet-rich plasma injection in epicondylitis. *Orthopaedic Nursing*, *33*(5), pp.257-265.

Schiottz-Christensen, B., Mooney, V., Azad, S., Selstad, D., Gulick, J. and Bracker, M., 1999. The role of active release manual therapy for upper extremity overuse syndromes—a preliminary report. *Journal of Occupational Rehabilitation*, *9*, pp.201-211.

Shamsoddini, A., Hollisaz, M.T. and Hafezi, R., 2010. Initial effect of taping technique on wrist extension and grip strength and pain of Individuals with lateral epicondylitis. *Iranian Rehabilitation Journal*, *8*(11), pp.24-28.

Shmushkevich, Y. and Kalichman, L., 2013. Myofascial pain in lateral epicondylalgia: a review. *Journal of bodywork and movement therapies*, *17*(4), pp.434-439.

Shukla, N., Sharma, D., Kumar, C. and Dixit, N., 2023. A Comparative Analysis of Effectiveness of Mulligan's Mobilisation Versus Cyriax Approach in the Case of Tennis Elbow. *Rivista Italiana di Filosofia Analitica Junior*, *14*(1), pp.333-341.

Singh, A.K., Wadhwa, K., Kumar, S., Fahim, T. and Mahajan, R., 2022. Comparison of effectiveness of cyriax physiotherapy and mobilization with movement technique in patients with tennis elbow. *Int J Phys Educ Sports Health*, *9*, pp.147-150.

Smedt, D. T., Jong, A. d., Leemput, W. V., Francis, D. L., and Glabbeek, V. 2007. Lateral epicondylitis in tennis: update on an etiology, biomechanics and treatment. British Journal of Sports Medicine, 41 (11):816-819.

Smidt, N., Assendelft, W., Arola, H., Malmivaara, A., Green, S., Buchbinder, R., van der Windt, D., & Bouter, L. 2003. Effectiveness of physiotherapy for lateral epicondylitis: A systematic review. *Annals of Medicine*, 35(1), 51-62.

Stasinopoulos, D. and Johnson, M.I., 2004. Cyriax physiotherapy for tennis elbow/lateral epicondylitis. *British journal of sports medicine*, *38*(6), pp.675-677.

Stasinopoulos, D. and Johnson, M.I., 2006. 'Lateral elbow tendinopathy 'is the most appropriate diagnostic term for the condition commonly referred-to as lateral epicondylitis. *Medical hypotheses*, *67*(6), pp.1400-1402.

Stasinopoulos, D., 2015. The effectiveness of isometric contractions combined with eccentric contractions and stretching exercises on pain and disability in lateral elbow tendinopathy. *A case report. J Nov Physiother*, *5*(238), p.2.

Stasinopoulos, D., Stasinopoulos, K. and Johnson, M.I., 2005. An exercise programme for the management of lateral elbow tendinopathy. *British journal of sports medicine*, *39*(12), pp.944-947.

Struijs, P.A.A., Kerkhoffs, G.M.M.J., Assendelft, W.J.J. and van Dijk, C.N., 2004. Conservative treatment of lateral epicondylitis: brace versus physical therapy or a combination of both—a randomized clinical trial. *The american journal of sports medicine*, *32*(2), pp.462-469.

Tarpada, S.P., Morris, M.T., Lian, J. and Rashidi, S., 2018. Current advances in the treatment of medial and lateral epicondylitis. *Journal of orthopaedics*, *15*(1), pp.107-110.

Taylor, S.A. and Hannafin, J.A., 2012. Evaluation and management of elbow tendinopathy. *Sports Health*, *4*(5), pp.384-393.

Thurston, A.J., 1998. Conservative and surgical treatment of tennis elbow: a study of outcome. *Australian and New Zealand journal of surgery*, *68*(8), pp.568-572.

Tosti, R., Jennings, J. and Sewards, J.M., 2013. Lateral epicondylitis of the elbow. *The American journal of medicine*, *126*(4), pp.357-e1.

Tsakoniti, A.E., Mandalidis, D.G., Athanasopoulos, S.I. and Stoupis, C.A., 2011. Effect of Q-angle on patellar positioning and thickness of knee articular cartilages. *Surgical and radiologic anatomy*, *33*, pp.97-104.

Trivedi, P., Sathiyavani, D., Nambi, G., Khuman, R., Shah, K. and Bhatt, P., 2014. Comparison of active release technique and myofascial release technique on pain, grip strength & functional performance in patients with chronic lateral epicondylitis. *Int J Physiother Res*, *2*(3), pp.488-94.

Tyler, T.F., Thomas, G.C., Nicholas, S.J. and McHugh, M.P., 2010. Addition of isolated wrist extensor eccentric exercise to standard treatment for chronic lateral epicondylitis: a prospective randomized trial. *Journal of Shoulder and Elbow surgery*, *19*(6), pp.917-922.

Valdes, K. and LaStayo, P., 2013. The value of provocative tests for the wrist and elbow: a literature review. *Journal of hand therapy*, *26*(1), pp.32-43.

Vicenzino, B., Brooksbank, J., Minto, J., Offord, S. and Paungmali, A., 2003. Initial effects of elbow taping on pain-free grip strength and pressure pain threshold. *Journal of Orthopaedic & Sports Physical Therapy*, *33*(7), pp.400-407.

Vaquero-Picado, A., Barco, R. and Antuña, S.A., 2016. Lateral epicondylitis of the elbow. *EFORT open reviews*, *1*(11), pp.391-397.

Viswas, R., Ramachandran, R. and Korde Anantkumar, P., 2012. Comparison of effectiveness of supervised exercise program and Cyriax physiotherapy in patients with tennis elbow (lateral epicondylitis): a randomized clinical trial. The scientific world journal, 2012

Wadsworth, T.G., 1987. Tennis elbow: conservative, surgical, and manipulative treatment. *British medical Journal (Clinical research ed.)*, *294*(6572), p.621.

Yao, G., Chen, J., Duan, Y. and Chen, X., 2020. Efficacy of Extracorporeal Shock Wave Therapy for Lateral Epicondylitis: A Systematic Review and Meta-Analysis. *BioMed research international*, *2020*(1), p.2064781.

APPENDIX

INFORM CONSENT

Assalamu-alaikum / Namaskar

I am Hafsa Khatun, a B.Sc. physiotherapy student at Saic College of Medical Science and Technology (SCMST), Mirpur. I will have to undertake research as part of my academic activity. Participants are invited to participate in the study after reading the following. My thesis is titled "Effectiveness of Cyriax DTFM along with Conventional Physiotherapy among the patients with Lateral Epicondylitis". Through this experimental research, I will evaluate the hypothesis that Cyriax DTFM is effective in conjunction with conventional physiotherapy among patients with lateral epi-condylitis. The goal of my research is to determine the efficacy of Cyriax DTFM combined with traditional physiotherapy in individuals with lateral epicondylitis. If I successfully finish this study, the patient may benefit from I've been suffering from tennis elbow, and the treatment will be evidence-based. To complete my study project, I need to gather data. Given the scope of my research, which criteria are required for my research are available to you. So, you can be a respected participant in my research, and I would like to include you as a subject in my study. I'd want to meet with you in a few of sessions during your normal therapy. The workouts you'll be given are painless and safe for you. I'd want to let you know that this is strictly an academic study and will not be utilized for any other reason. I assure you that all information will be kept confidential. Your participation would be. You may withdraw consent and terminate participation at any moment throughout the experiment. You also have the option to answer a question that you do not like. If you have any questions concerning the study or your rights as a participant, please contact me.

Do you have any question before I start?

So, may I have your consent to proceed with the interview?

Yes …… No……

Signature of the Interviewer…… Date…….

Signature of the participant …… Date…….

Signature of the witness…….. Date…….

মৌখিক সম্মতিপত্র

আসসালামু আলাইকুম / নমস্কার

আমি হাফসা খাতুন। মিরপুর সাইক কলেজ অব মেডিকেল সায়েন্স অ্যান্ড টেকনোলজি (এসসিএমএসটি) এর বিএসসি ইন ফিজিওথেরাপি বিভাগের শিক্ষার্থী। আমার প্রাতিষ্ঠানিক কাজ কর্মের অংশ হিসাবে আমাকে একটি গবেষণা করতে হবে। অংশগ্রহণকারীদের নিম্নলিখিত তথ্যাদি পড়ার পরে গবেষণায় অংশগ্রহণের জন্য অনুরোধ করা হচ্ছে। আমার গবেষণার বিষয় হল " **ল্যাটেরাল এপিকন্ডাইলাইটিস রোগীদের মধ্যে ফিজিওথেরাপি সহ সাইরিয়াক্স ডিটিএফএম এর কার্যকারিতা** "। এই পরীক্ষামূলক গবেষণার মাধ্যমে আমি একটি অনুমান পরীক্ষা করব যে ,সাইরিয়াক্স ডিটিএফএম এর কার্যকারিতা। আমার গবেষণার উদ্দেশ্য হল ল্যাটেরাল এপিকন্ডাইলাইটিস রোগীদের মধ্যে প্রচলিত ফিজিওথেরাপির সাথে সাইরিয়াক্স ডিটিএফ এমএর কার্যকারিতা খুঁজে বের করা। যদি আমি এই গবেষণাটি সফলভাবে সম্পন্ন করতে পারি, তাহলে যারা ল্যাটেরাল এপিকন্ডাইলাইটসে ভুগছেন সেইসব রোগীরা সুবিধা পেতে পারেন এবং এটি একটি গবেষণামূলক প্রমান। আমার গবেষণা প্রকল্পটি পূরণ করতে, আমাকে ডেটা সংগ্রহ করতে হবে। আমার গবেষণার ক্ষেত্র বিবেচনা করে, আমার গবেষণার জন্য কোন অনুমাপক প্রয়োজন তা আপনাদের সামনে তুলে ধরছি। সুতরাং, আপনি আমার গবেষণার একজন সম্মানিত অংশগ্রহণকারী হতে পারেন এবং আমি আপনাকে আমার গবেষণার অংশগ্রহনের জন্য অনুরোধ জানাচ্ছি। আপনার নিয়মিত থেরাপি চলাকালীন আমি আপনার সাথে কয়েকবার দেখা করব। যে ব্যায়ামগুলি দেওয়া হবে তা আপনার জন্য ব্যথামুক্ত এবং নিরাপদ। আমি আপনাকে জানাতে চাই যে এটি একটি সম্পূর্ণরূপে একাডেমিক গবেষণা এবং অন্য কোন উদ্দেশ্যে ব্যবহার করা হবে না। আমি আশ্বাস দিচ্ছি যে সমস্ত তথ্য গোপন রাখা হবে। আপনার অংশগ্রহণ স্বেচ্ছায় হবে। পরীক্ষার যেকোনো সময় আপনার সম্মতি প্রত্যাহার এবং অংশগ্রহণ বন্ধ করার অধিকার থাকতে পারে। আপনি পছন্দ করেন না এমন একটি নির্দিষ্ট প্রশ্নের উত্তর দেওয়ার অধিকারও আপনার আছে। আপনার যদি গবেষণা সম্পর্কে কোন প্রশ্ন থাকে বা অংশগ্রহণকারী হিসাবে সঠিক, আপনি আমার সাথে যোগাযোগ করতে পারেন।শুরু করার আগে আপনার কোন প্রশ্ন আছে? আমি কি আপনার সাক্ষাত্কার গ্রহণের সম্মতি পেয়েছি ?

হ্যাঁ ……..না……..

সাক্ষাৎকারের স্বাক্ষর…… তারিখ……

অংশগ্রহণকারীর স্বাক্ষর…… তারিখ……

সাক্ষীর স্বাক্ষর…… তারিখ……..

Questionnaire (English)

Title: Effectiveness of Cyriax DTFM along with Conventional Physiotherapy among the patients with Lateral Epicondylitis.

Part-1: Patient's information:

Code no:	
Date of interview:	
Patient's name:	
Address:	
Contact number:	

Part:2 Socio demographic information (Tick which is appropriate):

2.1. Age	……. year
2.2. Sex	1. Male 2. Female
2.3. What is your marital status?	1. Married 2. Unmarried 3. Separated 4. Divorced

2.4. Occupation	1. Private Service Holder 2. Driver 3. Housewife 4. Teacher 5. Farmer.
2.5. Educational qualification	1. Illiterate 2. Primary 3. SSC 4. HSC 5. Bachelor 6. Masters
2.6. Living area	1. Rural 2. Urban 3. Semi-urban
2.7. Family Size	1. Nuclear Family 2. Joint Family

Part:3 Medical Information

1.1.BMI: 1. Height…….cm 2. weight……kg	……
1.2.Comorbidities	1. Hypertension 2. Diabetes mellitus 3. Heart disease 4. Kidney disease 5. Respiratory disease 6. Peripheral nerve injury 7. Degenerative disc disease 8. None

1.3 Hand dominant	1. Right 2. Left
1.4 How long has the current problem been going on?	Weeks……
1.5 Which side is involved? (Encircle the side)	1. Right…… 2. Left……. 3. Both……
1.6 What part of your elbow hurts?	2. Front 3. Medial 4. Lateral 5. Back
1.7 Do you perform any repetitive or forceful tasks or movements?	1. Yes: 2. No:

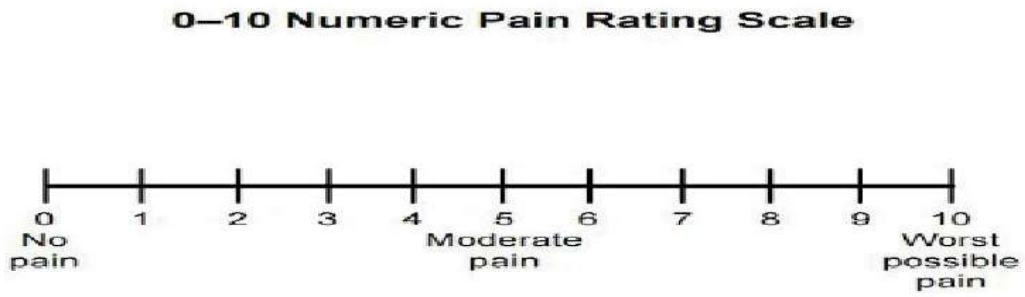
Pre test

Section: A (1) Pain Assessment

This questionnaire is intended for lateral epicondylitis patients. McCaffery et al. (1999) employed a numerical scale to assess patients' pain levels. It is known as the Numeric Pain Rating Scale. The scale is 10cm long and ranges from 0 to 10. A zero (0) signifies no pain, 1-3 indicates mild pain, 3-5 shows moderate pain, and 6-10 represents the greatest potential pain feeling reported by people. This component of the questionnaire will be completed by the patient with a black or blue ball pen. If the patient is unable to understand the meaning of a question, the physiotherapist is asked to clarify certain areas. Encircle the number that best represents your elbow's average level of pain. Describes your pain on a scale from 0-10. A zero (0) represents no pain and a ten (10) represents worst pain you have ever experienced.

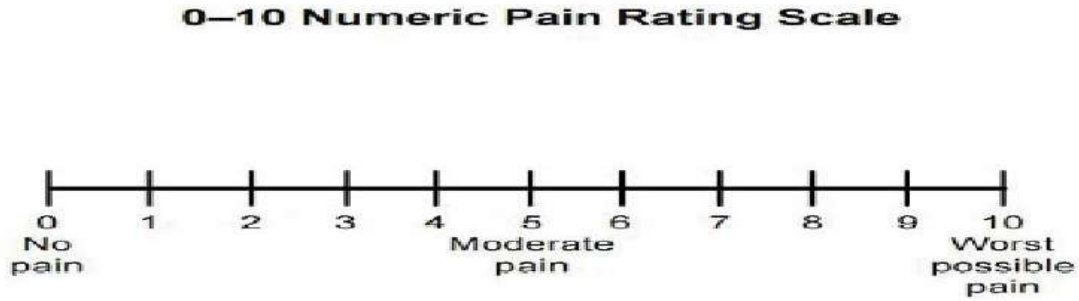
For example:

If any participant has pain between 7 to 9 at Numeric Pain Rating Scale than he/ she will fill up:



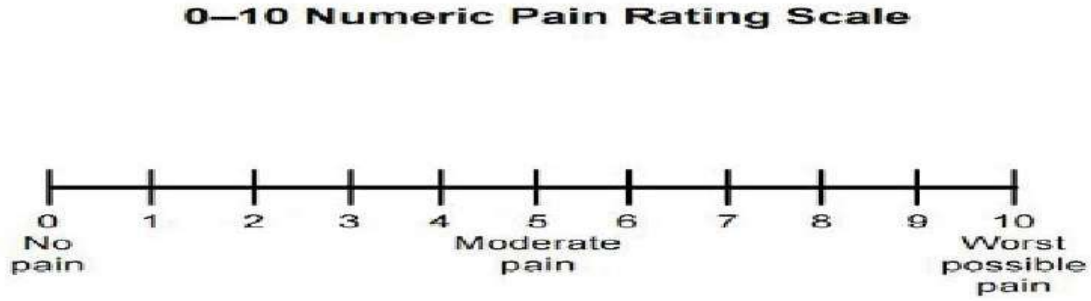
A Zero (0) means no pain (1-3) means mild pain (4-6) means moderate pain and (7-10) means severe pain

1.How severe your pain is at resting position?



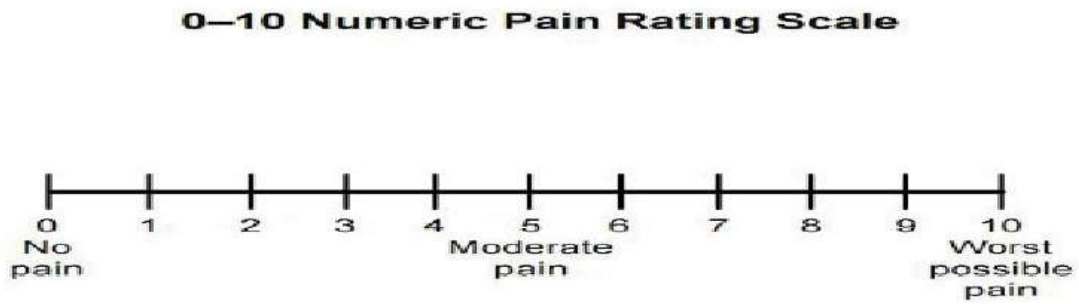
A Zero (0) means no pain (1-3) means mild pain (4-6) means moderate pain and (7-10) means severe pain

2.How severe is your pain at vigorous wrist extension?



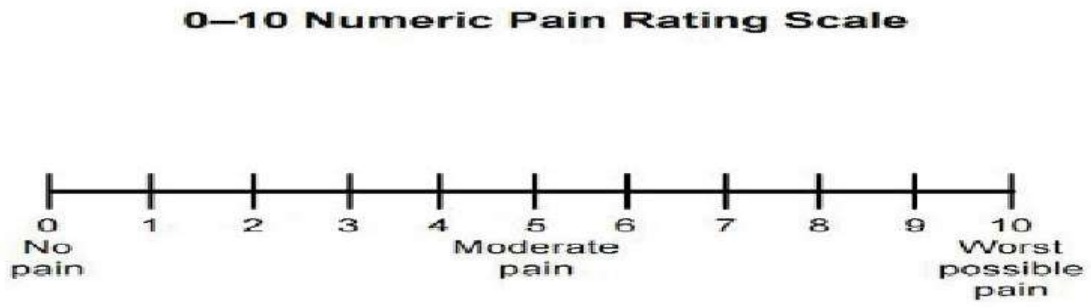
A Zero (0) means no pain (1-3) means mild pain (4-6) means moderate pain and (7-10) means severe pain

1. How severe is your pain during a strong grasp?



A Zero (0) means no pain (1-3) means mild pain (4-6) means moderate pain and (7-10) means severe pain

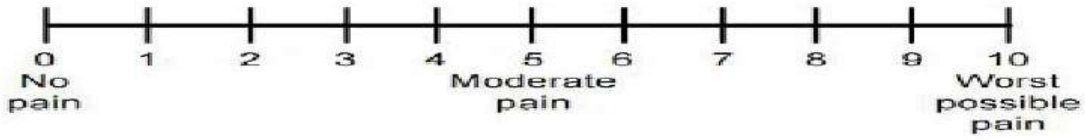
4. How severe is your pain when doing a task with repeated arm movement?



A Zero (0) means no pain (1-3) means mild pain (4-6) means moderate pain and (7-10) means severe pain

5. How severe is your pain when making a fist with pronation of forearm, and radial deviation and extension of wrist while the examiner resists the motion (cozen test).

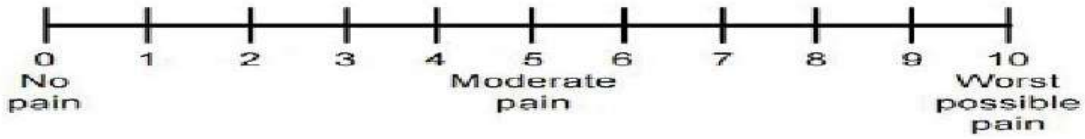
0–10 Numeric Pain Rating Scale



A Zero (0) means no pain (1-3) means mild pain (4-6) means moderate pain and (7-10) means severe pain

6. How severe is your pain during forceful middle finger extension?

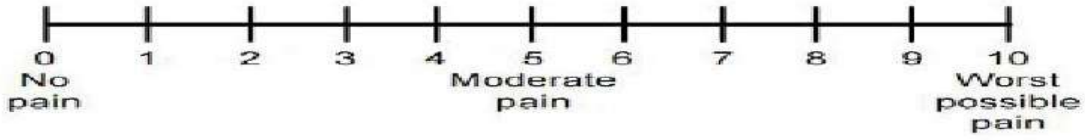
0–10 Numeric Pain Rating Scale



A Zero (0) means no pain (1-3) means mild pain (4-6) means moderate pain and (7-10) means severe pain

7. How severe is your pain during Turn a door or key or open a jar?

0–10 Numeric Pain Rating Scale



A Zero (0) means no pain (1-3) means mild pain (4-6) means moderate pain and (7-10) means severe pain

8. How severe is your pain on palpation to the affected side?

0–10 Numeric Pain Rating Scale

A Zero (0) means no pain (1-3) means mild pain (4-6) means moderate pain and (7-10) means severe pain

Functional Outcome Assessment Scale

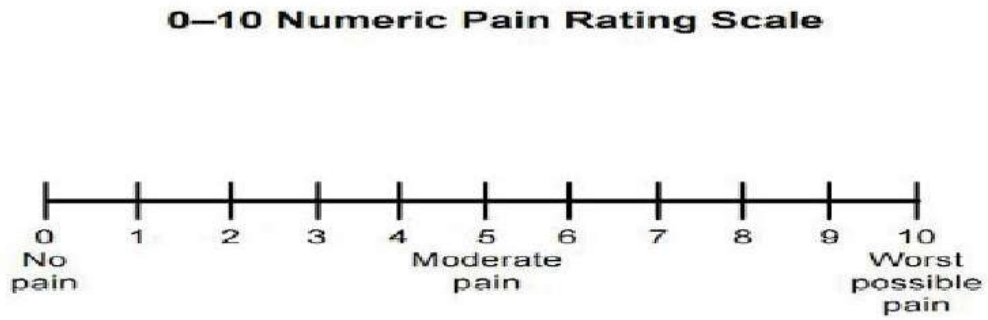
ACTIVITIES	No discomfort	Slight discomfort	Moderate discomfort	Quite a bit of discomfort	Extreme discomfort
1. Your usual work, housework, or school activities	0	1	2	3	4
2. Your usual hobbies, sporting or recreational activities	0	1	2	3	4
3. Activities like sweeping or raking	0	1	2	3	4
4. Using tools or appliances	0	1	2	3	4
5. Dressing yourself or pulling up your, pants/tights	0	1	2	3	4
6. Squeezing or gripping an object	0	1	2	3	4
7. Opening doors with your involved limb	0	1	2	3	4
8. Carrying a small I suitcase with your 1 involved limb	0	1	2	3	4
9. Opening a jar or can	0	1	2	3	4
10.Writing or using a keyboard	0	1	2	3	4

Date: ……. Signature of Examiner……

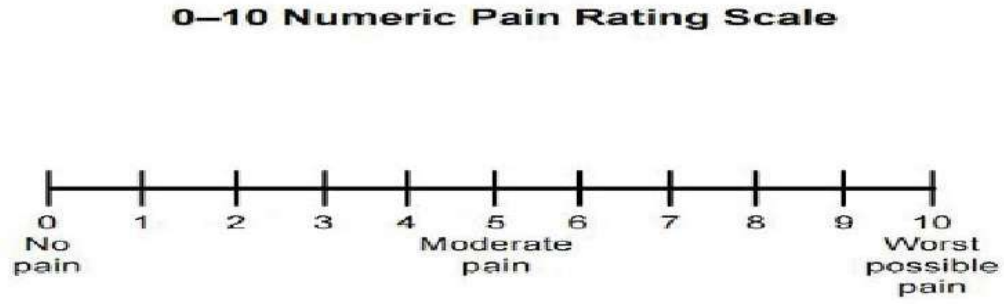
Post test

Section: B (2) Pain Assessment

This questionnaire is intended for lateral epicondylitis patients. McCaffery et al. (1999) employed a numerical scale to assess patients' pain levels. It is known as the Numeric Pain Rating Scale. The scale is 10cm long and ranges from 0 to 10. A zero (0) signifies no pain, 1-3 indicates mild pain, 3-5 shows moderate pain, and 6-10 represents the greatest potential pain feeling reported by people. This component of the questionnaire will be completed by the patient with a black or blue ball pen. If the patient is unable to understand the meaning of a question, the physiotherapist is asked to clarify certain areas. Encircle the number that best represents your elbow's average level of pain.describes your pain on a scale from 0-10. A zero (0) represents no pain and a ten (10) represents worst pain you have ever experienced. For example: If any participant has pain between 7 to 9 at Numeric Pain Rating Scale than he/ she will fill up:



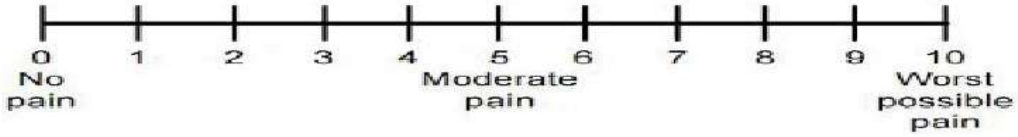
1. How severe your pain is at resting position?



A Zero (0) means no pain (1-3) means mild pain (4-6) means moderate pain and (7-10) means severe pain

2. How severe is your pain at vigorous wrist extension??

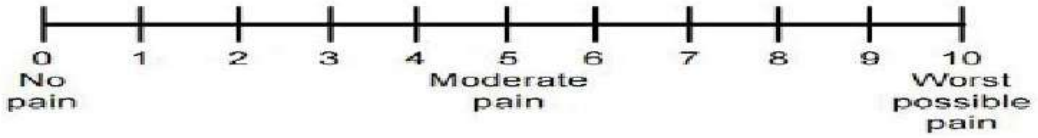
0–10 Numeric Pain Rating Scale



A Zero (0) means no pain (1-3) means mild pain (4-6) means moderate pain and (7-10) means severe pain

3. How severe is your pain during a strong grasp?

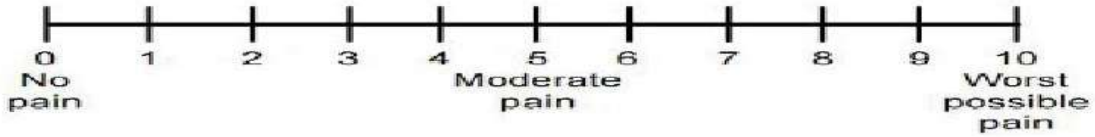
0–10 Numeric Pain Rating Scale



A Zero (0) means no pain (1-3) means mild pain (4-6) means moderate pain and (7-10) means severe pain

4.How severe is your pain when doing a task with repeated arm movement?

0–10 Numeric Pain Rating Scale



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0–10 Numeric Pain Rating Scale

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8. How severe is your pain on palpation to the affected side?

0–10 Numeric Pain Rating Scale

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Functional Outcome Assessment Scale

ACTIVITIES	No discomfort	Slight discomfort	Moderate discomfort	Quite a bit of discomfort	Extreme discomfort
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5. Dressing yourself or pulling up your, pants/tights	0	1	2	3	4
6. Squeezing or gripping an object	0	1	2	3	4
7. Opening doors with your involved limb	0	1	2	3	4
8. Carrying a small I suitcase with your 1 involved limb	0	1	2	3	4
9. Opening a jar or can	0	1	2	3	4
10. Writing or using a keyboard	0	1	2	3	4

Date: ……. Signature of Examiner……

প্রশ্নপত্র (বাংলা)

বিষয়: ল্যাটেরাল এপিকন্ডাইলাইটিস রোগীদের মধ্যে প্রচলিত ফিজিওথেরাপির সাথে সাইরিয়াক্স ডিটিএফএম এর কার্যকারিতা

অংশ-১: রোগীর তথ্য:

কোড নং:	
সাক্ষাৎকারের তারিখ:	
রোগীর নাম:	
ঠিকানা:	
যোগাযোগের নম্বর:	

অংশ:২ সামাজিক জনসংখ্যার তথ্য (উপযুক্ত টিক দিন):

২.১. বয়স	.....বছর
২.২ লিঙ্গ	১. পুরুষ ২. মহিলা
২.৩. আপনার বৈবাহিক অবস্থা কি?	১. বিবাহিত ২. অবিবাহিত ৩. বিচ্ছিন্ন ৪. তালাকপ্রাপ্ত
২.৪. পেশা	১. প্রাইভেট সার্ভিস হোল্ডার ২. ড্রাইভার ৩. শিক্ষক ৪. কৃষক ৫. গৃহিণী
২.৫. আপনার শিক্ষার স্তর কি?	১. নিরক্ষর ২. প্রাথমিক ৩. এসএসসি ৪. এইচএসসি ৫. স্নাতক ৬. মাস্টার্স এবং তার উপরে
২.৬. আপনার পরিবারের ধরন কি?	১. একক পরিবার ২. যৌথ পরিবার

২.৭. আপনার বসবাসের এলাকা কি?	১. গ্রাম ২. শহুরে ৩. মফস্বল

অংশ:৩ মেডিকেল তথ্য

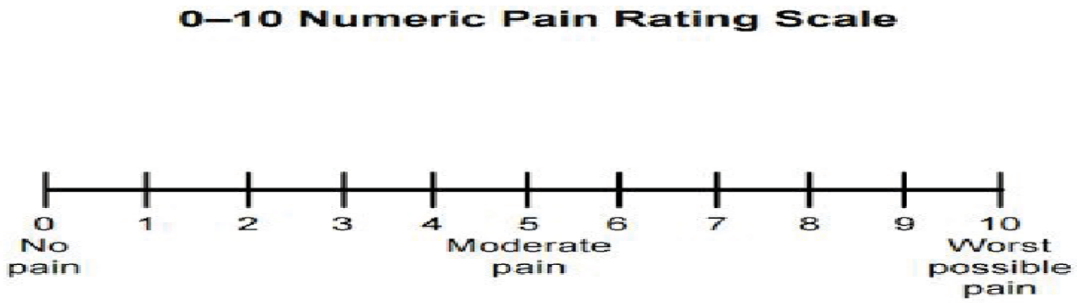
৩.১. বিএমআই : ১. উচ্চতা .....সেমি ২. ওজন .....কেজি	.....
৩.২. কমরবিডিটি	১.উচ্চ রক্তচাপ ২.ডায়াবেটিস মেলিটাস ৩. হৃদরোগ ৪. কিডনি রোগ ৫.শ্বাসযন্ত্রের রোগ ৬.পেরিফেরাল নার্ভ ইনজুরি ৭. ডিজেনারেটিভ ডিস্ক রোগ ৮. কোনোটিই নয়
৩.৩. আপনি কোন হাতে বেশি কাজ করেন?	১. ডান ২. বাম ৩. উভয়
৩.৪. বর্তমান সমস্যা কতদিন ধরে হচ্ছে?	১. সপ্তাহ.....
৩.৫. কোন হাতে ব্যাথা?	১. ডান..... ২. বাম..... ৩. উভয়ই.....
৩.৬. আপনার কনুইয়ের কোন অংশে ব্যাথা হয়?	১. ভিতরের দিকে ২. সামনে ৩. পিছনের দিকে ৪. বাহিরের দিকে
৩.৭. আপনি কি বারবার কোন কাজ করেন অথবা বেশি শক্তি প্রয়োগ করে কোন কাজ করেন?	১. হ্যাঁ: ২. না:

চিকিৎসার পূর্বেব্যথার পরিমান

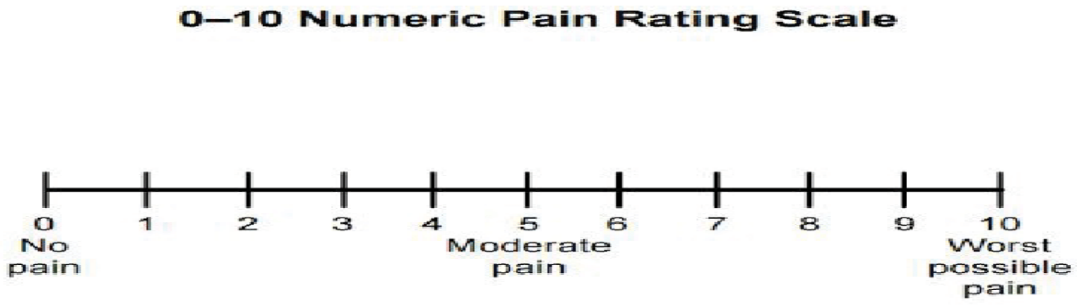
খণ্ড: এ (১)

এই প্রশ্নাবলী ল্যাটেরাল এপিকন্ডাইলাইটিস রোগীদের জন্য সাজানো হোয়েছে। McCaffery et al. (১৯৯৯) রোগীদের ব্যথার অভিজ্ঞতা বর্ণনা করার জন্য নিওমেরিক পেইন রেটিং স্কেল ব্যবহার করেন। এটি একটি সংখ্যাসূচক স্কেল যা ব্যথার পরিমান নির্ধারণ করে। এটি একটি ১০ সে.মি দীর্ঘ স্কেল যেখানে ০-১০ পর্যন্ত সংখ্যা দেওয়া আছে। এখানে (০) মানে কোন ব্যথা নেই (১-৩) মানে হাল্কা বাথা (৪-৬) মানে সহনীয় ব্যথা এবং (৭-১০) মানে হচ্ছে তীব্র ব্যথা। প্রশ্নাবলীর এই অংশ একটি কালো বা নীল বল কলম ব্যবহার করে রোগী পূরণ করবে। রোগী কোন প্রশ্ন বুঝতে নাপারলে, ফিজিওথেরাপিস্ট সে অংশটি বুঝতে সাহায্য করবেন। ০-১০ থেকে একটি স্কেল যা আপনার ব্যথা বর্ণনা করে, একটি বৃত্তের মাধ্যমে আপনার কনুইতে ব্যথার গড় পরিমান চিহ্নিত করুন। এখানে ০ হচ্ছে কোন ব্যথা নেই এবং ১০ হচ্ছে তীব্র ব্যথা।

উদাহরণ স্বরূপ: যদি কোনো অংশগ্রহণকারীর সাংখ্যিক ব্যথা রেটিং স্কেলে ৭ থেকে ৯ এর মধ্যে ব্যথা হয় তবে সে পূরণ করবে:



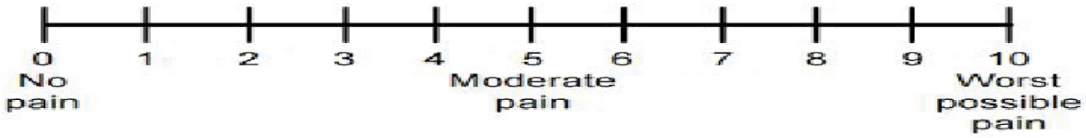
১.স্বাভাবিক বিশ্রামে থাকাকালীন আপনার ব্যথা কতটুকু তীব্র হয়?



এখানে(০)মানে ব্যথা নেই(১-৩)মানে হালকা ব্যথা(৪-৬)মানে মাঝারি ব্যথা এবং(৭-১০)মানে তীব্র ব্যথা

২.জোরপূর্বক কব্জি সোজা করার সময় আপনার ব্যথা কতটা তীব্র হয়?

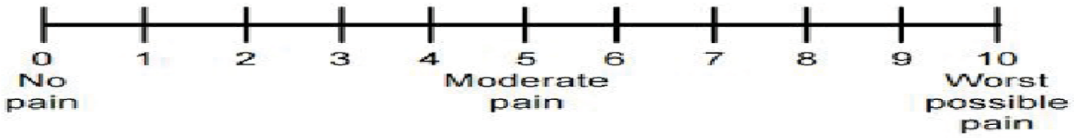
0—10 Numeric Pain Rating Scale



এখানে (০) মানে ব্যথা নেই (১-৩) মানে হালকা ব্যথা (৪-৬) মানে মাঝারি ব্যথা এবং (৭-১০) মানে তীব্র ব্যথা

৩. বলপূর্বক হাত মুষ্টি করার সময় আপনার কনুই এর ব্যথা কতটুকু তীব্র হয়?

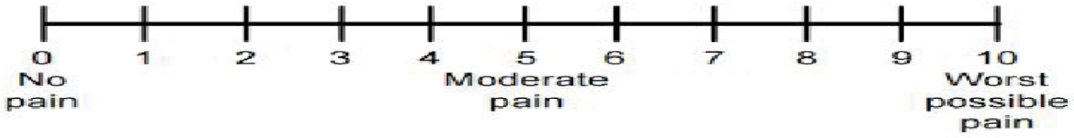
0—10 Numeric Pain Rating Scale



এখানে(০)মানে ব্যথা নেই(১-৩)মানে হালকা ব্যথা(৪-৬)মানে মাঝারি ব্যথা এবং(৭-১০)মানে তীব্র ব্যথা

৪. যখন আপনি হাতের নড়াচড়ার মাধ্যমে একটি কাজ বারবার করেন তখন আপনার ব্যথার তীব্রতা কতখানি?

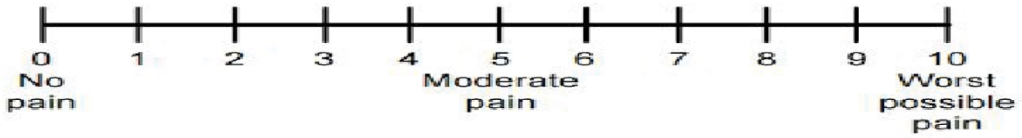
0—10 Numeric Pain Rating Scale



এখানে(০)মানে ব্যথা নেই(১-৩)মানে হালকা ব্যথা(৪-৬)মানে মাঝারি ব্যথা এবং(৭-১০) মানে তীব্র ব্যথা

৫. বলপূর্বক হাত মুষ্টি করে কনুই থেকে কব্জি উপর পর্যন্ত অংশ উপুড় করে এবং কব্জি রেডিয়াসের দিকে বাকিয়ে সোজা করার সময় (কোজেন টেস্ট) আপনার ব্যথা কতটুকু তীব্র হয়?

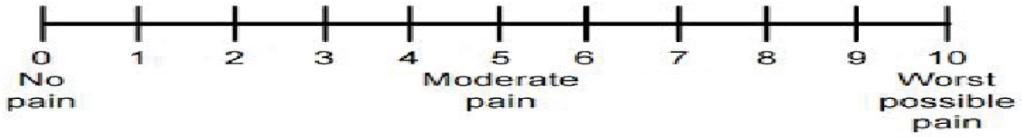
0—10 Numeric Pain Rating Scale



এখানে (০) মানে কোন ব্যথা নেই (১-৩) মানে হাল্কা ব্যথা (৪-৬) মানে সহনীয় ব্যথা এবং (৭-১০) মানে হচ্ছে তীব্র ব্যথা।

৬। বলপূর্বক হাতের তৃতীয় আঙ্গুল সোজা রেখে উপরের দিকে উঠানোর সময় আপনার ব্যথা কতটুকু তীব্র হয়?

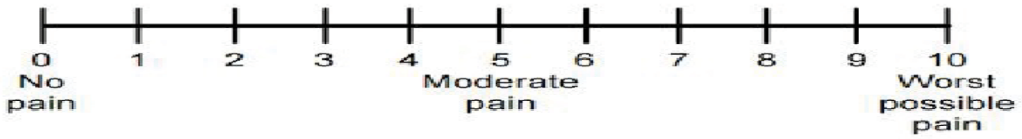
0—10 Numeric Pain Rating Scale



এখানে (০) মানে কোন ব্যথা নেই (১-৩) মানে হাল্কা ব্যথা (৪-৬) মানে সহনীয় ব্যথা এবং (৭-১০) মানে হচ্ছে তীব্র ব্যথা।

৭। দরজার তালা খোলার সময়, বোতল এর মুখ খোলার সময় আপনার ব্যথা কতটুকু তীব্র হয়া?

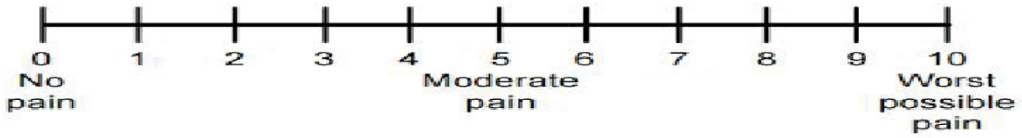
0—10 Numeric Pain Rating Scale



এখানে (০) মানে কোন ব্যথা নেই (১-৩) মানে হাল্কা ব্যথা (৪-৬) মানে সহনীয় বাথ্য এবং (৭-১০) মানে হচ্ছে তীব্র ব্যথা।

৮।আক্রান্ত স্থানে হাত দিয়ে অনুভব করার সময় আপনার ব্যথা কতটুকু তীব্র হয়?

0–10 Numeric Pain Rating Scale



এখানে (০) মানে কোন ব্যথা নেই (১-৩) মানে হাল্কা ব্যথা (৪-৬) মানে সহনীয় ব্যথা এবং (৭-১০) মানে হচ্ছে তীব্র ব্যথা

(২): কার্যকরী ফলাফল মূল্যায়ন

কার্যকলাপ	কোন অস্বস্তি নাই	সামান্য অস্বস্তি	পরিমিত অস্বস্তি	খুব সামান্য অস্বস্তির	চরম অস্বস্তি
১.আপনার স্বাভাবিক কাজ, বাড়ির কাজ, বা স্কুল কার্যক্রম	০	১	২	৩	৪
২. আপনার স্বাভাবিক শখ, খেলাধুলা বা বিনোদনমূলক কার্যকলাপ	০	১	২	৩	৪
৩.ঝাড়ু দেওয়া বা র‍্যাকিং এর মত কার্যক্রম	০	১	২	৩	৪
৪.সরঞ্জাম বা যন্ত্রপাতি ব্যবহার করা	০	১	২	৩	৪
৫.নিজের পোষাক পরা বা প্যান্ট / টাইটস পরা	০	১	২	৩	৪
৬. কোনো বস্তুকে চেপে ধরা বা আঁকড়ে ধরা	০	১	২	৩	৪
৭. আপনার যে হাতে সমস্যা সেই হাতে দরজা খোলা	০	১	২	৩	৪
৮. আপনার ১ জড়িত অঙ্গের সাথে একটি ছোট আই স্যুটকেস বহন করা	০	১	২	৩	৪
৯. একটি জার বা ক্যান খোলা	০	১	২	৩	৪
১০. কীবোর্ড লেখা বা ব্যবহার করা	০	১	২	৩	৪

তারিখ: ..... পরীক্ষকের স্বাক্ষর :.....

চিকিৎসার পরে ব্যথার পরিমান

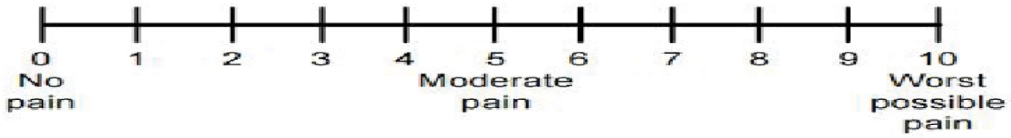
বিভাগ: বি (১)

এই প্রশ্নাবলী ল্যাটেরাল এপিকন্ডাইলাইটিস রোগীদের জন্য সাজানো হোয়েছে। McCaffery et al. (১৯৯৯) রোগীদের ব্যথার অভিজ্ঞতা বর্ণনা করার জন্য নিওমেরিক পেইন রেটিং স্কেল ব্যবহার করেন। এটি একটি সংখ্যাসূচক স্কেল যা ব্যথার পরিমান নির্ধারণ করে। এটি একটি ১০সে. মি দীর্ঘ স্কেল যেখানে ০-১০ পর্যন্ত সংখ্যা দেওয়া আছে। এখানে (০) মানে কোন ব্যথা নেই (১-৩) মানে হাল্কা বাথা (৪-৬)মানে সহনীয় ব্যথা এবং (৭-১০) মানে হচ্ছে তীব্র ব্যথা।

প্রশ্নাবলীর এই অংশ একটি কালো বা নীল বল কলম ব্যবহার করে রোগী পূরণ করবে। রোগী কোন প্রশ্ন বুঝতে নাপারলে, ফিজিওথেরাপিস্ট সে অংশটি বুঝতে সাহায্য করবেন। ০-১০ থেকে একটি স্কেল যা আপনার ব্যথা বর্ণনা করে, একটি বৃত্তের মাধ্যমে আপনার কনুইতে ব্যথার গড় পরিমান চিহ্নিত করুন। এখানে ০ হচ্ছে কোন ব্যথা নেই এবং ১০ হচ্ছে তীব্র ব্যথা। উদাহরণ স্বরূপ:

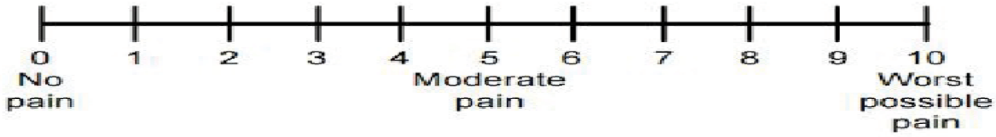
যদি কোনো অংশগ্রহণকারীর সাংখ্যিক ব্যথা রেটিং স্কেলে ৭ থেকে ৯ এর মধ্যে ব্যথা হয় তবে সে পূরণকরবে:

0–10 Numeric Pain Rating Scale



১.স্বাভাবিক বিশ্রামে থাকাকালীন আপনার ব্যথা কতটুকু তীব্র হয়?

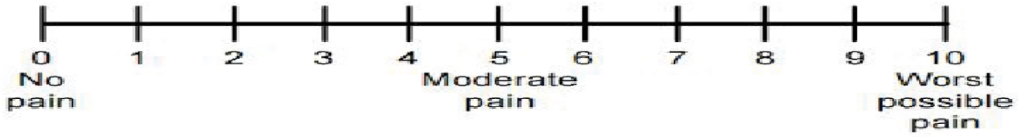
0–10 Numeric Pain Rating Scale



এখানে(০)মানে ব্যথা নেই(১-৩)মানে হালকা ব্যথা(৪-৬)মানে মাঝারি ব্যথা এবং(৭-১০)মানে তীব্র ব্যথা

২. জোরপূর্বক কব্জি সোজা করার সময় আপনার ব্যথা কতটা তীব্র হয়?

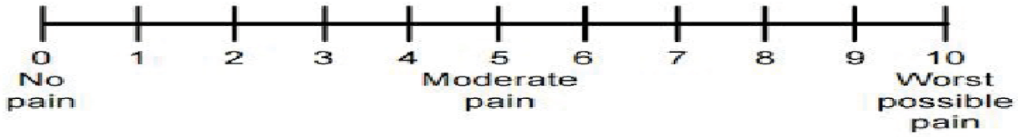
0–10 Numeric Pain Rating Scale



এখানে (০) মানে ব্যথা নেই (১-৩) মানে হালকা ব্যথা (৪-৬) মানে মাঝারি ব্যথা এবং (৭-১০) মানে তীব্র ব্যথা

৩. বল পূর্বক হাত মুষ্টি করার সময় আপনার কনুই এর ব্যথা কতটুকু তীব্র হয়?

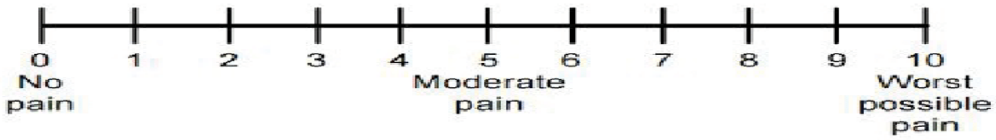
0–10 Numeric Pain Rating Scale



এখানে(০)মানে ব্যথা নেই(১-৩)মানে হালকা ব্যথা(৪-৬)মানে মাঝারি ব্যথা এবং (৭-১০) মানে তীব্র ব্যথা

৪. যখন আপনি হাতের নড়াচড়ার মাধ্যমে একটি কাজ বারবার করেন তখন আপনার ব্যথার তীব্রতা কত?

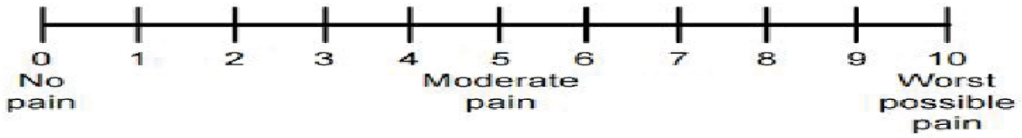
0–10 Numeric Pain Rating Scale



এখানে (০) মানে ব্যথা নেই (১-৩) মানে হালকা ব্যথা (৪-৬) মানে মাঝারি ব্যথা এবং (৭-১০) মানে তীব্র ব্যথা

৫. বলপূর্বক হাত মুষ্টি করে কনুই থেকে কব্জি উপর পর্যন্ত অংশ উপুড় করে এবং কব্জি রেডিয়াসের দিকে বাকিয়ে সোজা করার সময় (কোজেন টেস্ট) আপনার ব্যথা কতটুকু তীব্র হয়?

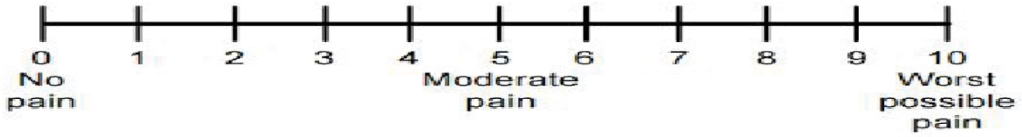
0—10 Numeric Pain Rating Scale



এখানে(০)মানে ব্যথা নেই(১-৩)মানে হালকা ব্যথা(৪-৬)মানে মাঝারি ব্যথা এবং(৭-১০) মানে তীব্র ব্যথা

৬। বলপূর্বক হাতের তৃতীয় আঙ্গুল সোজা রেখে উপরের দিকে উঠানোর সময় আপনার ব্যথা কতটুকু তীব্র হয়?

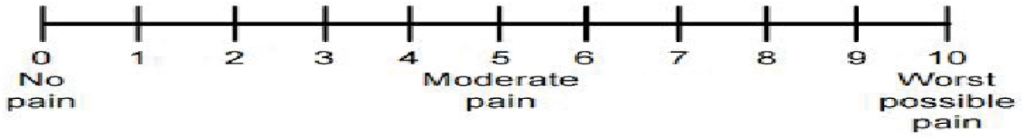
0—10 Numeric Pain Rating Scale



এখানে(০)মানে ব্যথা নেই(১-৩)মানে হালকা ব্যথা(৪-৬)মানে মাঝারি ব্যথা এবং(৭-১০) মানে তীব্র ব্যথা

৭। দরজার তালা খোলার সময়, বোতল এর মুখ খোলার সময় আপনার ব্যথা কতটুকু তীব্র হয়া?

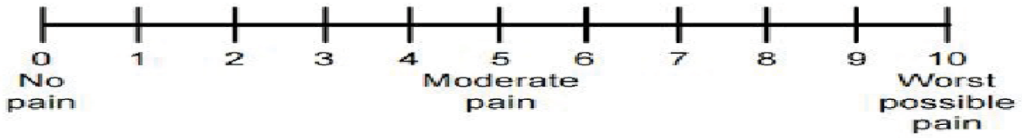
0—10 Numeric Pain Rating Scale



এখানে (০) মানে কোন ব্যথা নেই (১-৩) মানে হাল্কা ব্যথা (৪-৬) মানে সহনীয় ব্যথা এবং (৭-১০) মানে হচ্ছে তীব্র ব্যথা

৮। আক্রান্ত স্থানে হাত দিয়ে অনুভব করার সময় আপনার ব্যথা কতটুকু তীব্র হয়?

0–10 Numeric Pain Rating Scale



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(২): কার্যকরী ফলাফল মূল্যায়ন

কার্যকলাপ	কোন অস্বস্তি নাই	সামান্য অস্বস্তি	পরিমিত অস্বস্তি	খুব সামান্য অস্বস্তির	চরম অস্বস্তি
১.আপনার স্বাভাবিক কাজ, বাড়ির কাজ, বা স্কুলের কাজকর্ম	০	১	২	৩	৪
২. আপনার স্বাভাবিক শখ, খেলাধুলা বা বিনোদনমূলক কার্যকলাপ	০	১	২	৩	৪
৩. ঝাড়ু দেওয়া বা র‍্যাকিং এর মত কার্যক্রম	০	১	২	৩	৪
৪. সরঞ্জাম বা যন্ত্রপাতি ব্যবহার করা	০	১	২	৩	৪
৫. নিজের পোষাক পরা বা প্যান্ট / টাইটস পরা	০	১	২	৩	৪
৬.কোনো বস্তুকে চেপে ধরা বা আকরে ধরা	০	১	২	৩	৪
৭. আপনার যে হাতে সমস্যা সেই হাতে দরজা খোলা	০	১	২	৩	৪
৮. আপনার জড়িত অঙ্গের সাথে একটি ছোট আই স্যুটকেস বহন করা	০	১	২	৩	৪
৯. একটি জার বা ক্যান খোলা	০	১	২	৩	৪
১০. কীবোর্ড লেখা বা ব্যবহার করা	০	১	২	৩	৪

তারিখ: ..... পরীক্ষকের স্বাক্ষর:.....

SCMST-BPT/IRB/05-23/021

To
Mst Hafsa Khatun
4th Year Student of B.Sc. in Physiotherapy
Session:2018- 2019 , Reg No:10424
SAIC College of Medical Science & Technology (SCMST)
Mirpur-14, Dhaka-1216, Bangladesh

Subject: Approval of the thesis proposal **"Effectiveness of Cyriax DTFM along with conventional physiotherapy among the patients with lateral epicondylities"** by ethics committee.

Dear, Mst Hafsa Khatun
Congratulations.
The Institutional Review Board (IRB) of SCMST has reviewed and discussed your application to conduct the dissertation as mentioned earlier, with yourself, as the principal investigator. The following documents have been reviewed and approved:

Sr. No.	Name of the Documents
1	Research proposal
2	Semi-structured Questionnaire (English & Bangla Version)
3	Information sheet & consent form.

The purpose of the study to find out the effectiveness of cyriax DTFM along conventional physiotherapy among the patients with lateral epicondylities. The study involves in-depth interviews by using a semi-structured questionnaire **to find out the effectiveness of cyriax DTFM along with conventional physiotherapy among the patients lateral epicondylities** It may take 30 to 40 minutes to conduct the interview and there is no likelihood of any harm to the participants. The members of the Ethics committee have approved the study to be conducted in the presented form at the meeting held at 09.00 AM on 28th September 2023 at SCMST.

The institutional Ethics committee expects to be informed about the progress of the study, any changes occurring during the study, any revision in the protocol and patient information or informed consent and ask to be provided a copy of the final report. This Ethics committee is working accordance to Nuremberg Code 1947, World Medical Association Declaration of Helsinki, 1964 - 2013 and other applicable regulation.

Best regards, 12.05.24

Dr. Abul Kasem Mohammad Enamul Haque
Principal, SCMST &Chairman, Institutional Review Board (IRB)
SAIC College of Medical Science & Technology (SCMST)
Mirpur-14, Dhaka-1216, Bangladesh

Permission Letter

12th June, 2024

To

The Managing director

Elite Physiotherapy and rehab zone

Mirpur 11, Dhaka-1216

Subject: Prayer for permission to collect data from the Elite Physiotherapy and rehab zone to conduct a research project.

Sir,

With due respect and humble submission to state that I am a student of B.Sc. in Physiotherapy at SAIC College of Medical Science and Technology (SCMST). As a part of our course curriculum, we have to conduct a research project for the partial fulfillment of the requirement for the degree of B.Sc. in Physiotherapy. My research title is **"Effectiveness of Cyriax DTFM along with Conventional Physiotherapy among the patients with Lateral Epicondylitis."** and the study aims to find out the effectiveness of cyriax DTFM along with conventional physiotherapy among the patients with lateral epicondylitis. This is a quasi-experimental study under the supervision of Md. Kutub Uddin, Lecturer, Department of Physiotherapy, SCMST. I want to collect data from the Elite physiotherapy and Rehab zone. So, I need your permission to collect data and ensure that the study will not be harmful for participants.

So, I therefore, pray and hope that you would be kind enough to give permission for data collection that will help me to complete my study.

Yours Faithfully

Elite Physiotherapy & Rehab Zone
Date.....
Mirpur-11, Dhaka
12.06.2024.

Mst: Hafsa khatun

Student of B.Sc. in Physiotherapy

Session: 2018-2019

Reg No: 10424

SAIC College of Medical Science and Technology (SCMST)

Mirpur-14, Dhaka 1216, Bangladesh.

To

The Managing director

Academy of physiotherapy pain and rehabilitation center.

Mirpur 10, Dhaka-1216

Subject: Prayer for permission to collect data from the Academy of physiotherapy pain and rehabilitation center to conduct a research project.

Sir,

With due respect and humble submission to state that I am a student of B.Sc. in Physiotherapy at SAIC College of Medical Science and Technology (SCMST). As a part of our course curriculum, we have to conduct a research project for the partial fulfillment of the requirement for the degree of B.Sc. in Physiotherapy. My research title is **"Effectiveness of Cyriax DTFM along with Conventional Physiotherapy among the patients with Lateral Epicondylitis."**. This is a quasi-experimental study under the supervision of Md. Kutub Uddin, Lecturer, Department of Physiotherapy, SCMST. I want to collect data from the Academy of physiotherapy pain and rehabilitation center. So, I need your permission to collect data and ensure that the study will not be harmful for participants.

So, I, therefore, pray and hope that you would be kind enough to give permission for data collection that will help me to complete my study.

Yours Faithfully

Mst. Hafsa Khatun
09-06-2024

Mst: Hafsa khatun

Student of B.Sc. in Physiotherapy

Session: 2018-2019

Reg No: 10424

SAIC College of Medical Science and Technology (SCMST)

Mirpur-14, Dhaka 1216, Bangladesh.

Allow to collect data with maintain all Research ethics

09.06.2024

Assoc. Prof. S.M. Mustafa Kamal
MSPAR, MPH, BPT (CPD-BHPI-DU)
Pain, Arthritis, Paralysis Physiotherapy & Disability Management Specialist
Academy of Physiotherapy
Section-10, Mirpur, Dhaka-1216

Treatment of tennis elbow

⇒ Pectoralis ms release on side
3min x daily.

⇒ DTFM on Lateral epicondyle
5min x daily

⇒ MWM on affected side
6time x daily

⇒ Eccentric Strengthening exercise elbow jt
10 times x 3 daily

⇒ Ice compression

⇒ UST on painfull side

⇒ Mill's manipulation

Advice

- Avoid at lifting
- Avoid long time functional activity

4.6.24

Dr. Md. Rasel Hossain, PT
BSPT (DU)
Chiropractice adjustment (India)
Clinical Physiotherapist
Physiotherapy Department, SCMST
Dhaka-1216

Rx plan for lateral epicondylitis:-

i. DTFM over common extensor tendon → 10 min.

ii. Soft tissue relase → 5 min.

iii. Eccentric strengthening → 10 rep × 3 times.

iv. UST → 5 min.

v. Ice → 5 min × 3 times.

vi. Use tennis elbow brace for reducing → 6 weeks.
pressure on the injured tendon.

Elite Physiotherapy & Rehab Zone
Date 2.7.24
Mirpur-11, Dhaka

Rx for lateral epicondylitis

1. DTFM —— 10 min
2. Myofascial Release —— 3 to 5 Minute
3. Eccentric Strengthening Exercise —10 reps x 2 time.
4. UST —— 5 min (Non-thermal effect)
5. Ice compression —— 5 min x 2 time.
6. Mill's Manipulation — 6 Maneuver/Session.

06-06-2024
Assoc. Prof. S.M. Muslola Kamal
MDMR, MPH, BPT (CRP-BNPT-DU)
Pain, Arthritis, Paralysis, Physiotherapy &
Disability Management Specialist
Academy of Physiotherapy
Section-10, Mirpur, Dhaka-1216