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"Effectiveness of kinesiotaping verses tendon gliding exercises for de quervain tenosynovitis in the computer users: A Comparative study"

SUBMITTED BY

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GUIDE

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Introduction

A stenosing tenosynovitis of the first extensor compartment, which contains the abductor pollicis longus and the extensor pollicis brevis, is known as De Quervain's syndrome.[1] Pain is experienced over the tendons near the wrist's radial border, notably when the thumb is used repeatedly or erratically and when the wrist is moved.[1] There is swelling and pain in the vicinity of the thumb's base.[1] This issue makes it harder for you to move your thumb and wrist when performing grasping and pinching tasks.[1] Overuse injuries are nearly invariably the root cause.[1]

Several additional names for this ailment are **WhatsAppitis, Gamer's thumb, Washerwoman's sprain, Teen texting tendonitis, BlackBerry thumb, Texting tenosynovitis, and Radial styloid tenosynovitis**.[2]

In addition to pain, the patients may also have dysesthesias, which include tingling, burning, cramping, and numbness. A positive Finkelstein test is the most common finding in De Quervain's Tenosynovitis.[3]

According to studies, people whose professions require repetitive or forceful motions and extended uncomfortable positions are more likely to experience musculoskeletal problems.[4] De Quervain's tenosynovitis studies are frequently linked to occupational accidents (Williams, et al.).[4]

According to Blatter and Bongers (2002), men and women experience musculoskeletal diseases of the neck or upper limbs after six hours or more of computer use each day, respectively.[5] For women, the symptoms occur after four hours of computer use.[5]

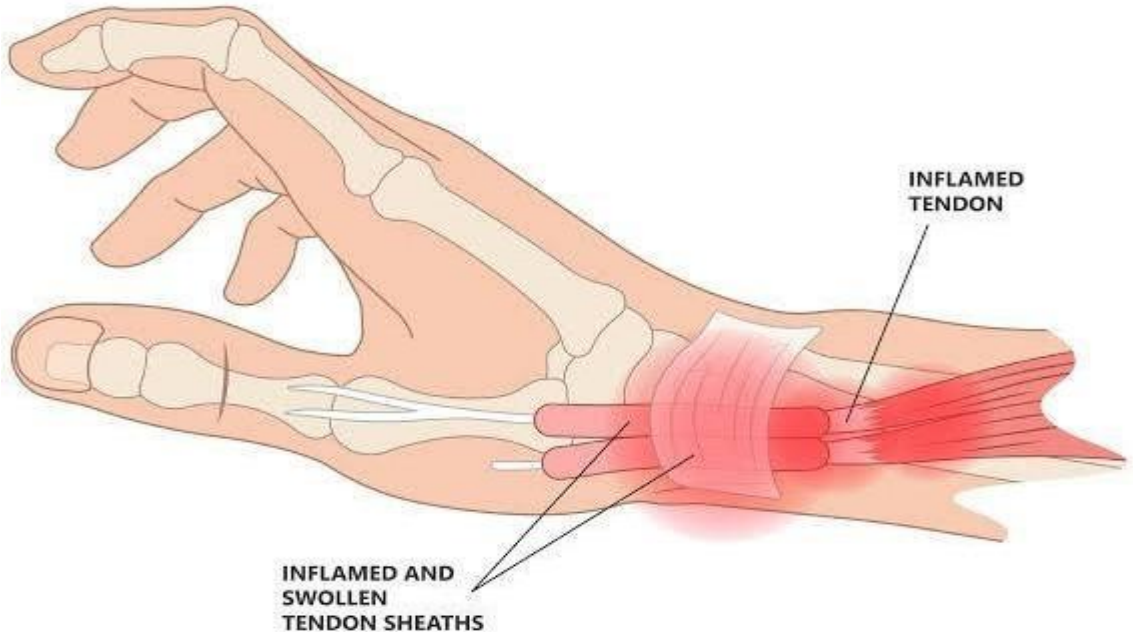
Repeated strain injuries are more likely to develop in computer users who engage in repetitive thumb tasks like typing or mouse clicking.[6] The phrase "repetitive strain injury" describes damage to soft tissues (muscles, tendons, and ligaments) caused by doing the same activity over and over again.[6] Computer users experienced De Quervain's Tenosynovits as a result of repetitive movement.[6]

Kinesio tape is a thin, latex-free, cotton-based, porous cloth with an acrylic adhesive that is nonmediated.[7] It is distinguished by its capacity to extend to 120– 140 % of its initial length and then contract back to its initial length after application.[7]

In order to prevent inflammation and chronic pain, kinesio taping aims to: reduce pain, reduce swelling and inflammation, expand the space between tissues, maintain and relieve skin tension, provide a support system for muscles and joints to ward against these conditions, it facilitates efficient human movement, decompresses the fascia which promotes a better movement of lymphatic fluid and, last but not least, releases the body's natural healing capacity.[8]

Exercises for tendon gliding include the tabletop, straight fist, hookfist, fullfist, and straight hand. 10 reps with a 5-second hold, twice a day. [9] These hand workouts are beneficial to the heart as well as providing the maximal range of motion at each finger joint and smooth extensor and intrinsic tendon glide.[9]

The finger motion required for writing is maintained by tendon gliding exercises.[9] Muscle fatigue during writing is avoided by these advantages.[9]



Need for Study

- Purpose of the study is to analyse the effectiveness of kinesiotaping and tendon gliding exercise for de quervain tenosynovits in computer users.

- The study which were done before emphasis mostly on kinesiotaping and tendon gliding exercises moreover they were not compare that which one is more effective .

- This study will help us to find which method of treatment plan is beneficial for de quervain tenosynovits patient by this we can develop a better plan of treatment and help to relieve the symptoms and improve quality of life more effectively in de quervain tenosynovits in computer users.

- So these study has to be done to find the effectiveness of kinesiotaping and tendon gliding exercises for de quervain tenosynovits in computer users .

Aim and Objectives

- To compare the effect of kinesiotaping and tendon gliding exercises for de quervain tenosynovits in computer users.

Objectives

- To analyze the effect of kinesiotaping in de quervain tenosynovits in computer users .

- To analyze the effect of tendon gliding exercises in de quervain tenosynovits in computer users.

- To analyze the effectiveness of kinesiotaping verses tendon gliding exercises for de quervain tenosynovits in computer users.

Research Question

- Whether there will be any difference between the effect of kinesiotaping verses the effect of tendon gliding exercises for de quervains's tenosynovitis in computer users ?

Hypothesis

Null Hypothesis -

There will be no significant difference between effect of kinesiotaping verses tendon gliding exercises for de quervain tenosynovits in computer users.

Alternate Hypothesis –

There will be significant difference between effect of kinesiotaping verses tendon gliding exercises for de quervain tenosynovits in computer users.

Review of Literature

1. Incidence of De Quervain's Tenosynovitis in Computer Operators Layba Awais1, Syed Ali Behram Subawari1, Shehryar Azam2 And Israa Anwar3

The objective of the study was to find out the incidence of de quervain's tenosynovitis in regular computer operators.

Each participating person among the 147 regular computer operators was examined for the Finkelstein's Test in order to diagnose the de quervain's tenosynovitis. Pain in radial side of wrist, tenderness of first dorsal compartment and positive Finkelstein's Test used to define de quervain's tenosynovitis .

The present research shows that among 147 computer operators tested for de quervain's tennosynovitis by Finkelstien's test 99(67.3%) showed the test as being positive and 48 (32.7%) showed the test as being negative whereas Hingarajia et al. conducted a research that stated that the prevelance of de quervian's tenosynovitis was 46% in computer users .

Conclusion – It is concluded that the incidence of de quervains tenosynovitis among the regular computer operators on the basis of Finkelstien Test was high. Many of the regular computer operators used computer for more than 2 hours up to more than 8 hours a day. Also the keyboard typing made the pain worst among the regular computer users.

2. Prevalence and Awareness Evaluation of De Quervain's Tenosynovitis Among Students in the Kingdom of Saudi Arabia Bashar Reada1, Nawaf Alshaebi2, Khalid Almaghrabi2, Abdullah Alshuaibi2, Arwa Abulnaja3 Khames Alzahrani4

The purpose of this study was to determine the prevalence of de quervain's tenosynovitis among students using smartphones in Saudi Arabia.

Among the 233 participants who had a positive Finkelstein's sign, 48% reported that the pain was more intense in the dominant hand. Because most activities are usually performed using the dominant hand that involve many wrist movements, pinching, and grasping, the use of the dominant hand might be considered a risk factor for developing de quervain's tenosynovitis. *Conclusion* -Our study was conducted to demonstrate the association between the use of thumb and de quervain's tenosynovitis in students throughout Saudi Arabia, including medical and non-medical students, raising public awareness regarding the risk factors that can lead to this condition since 68.9% of participants had a positive Finkelstein's sign.

3. Frequency of De Quervain's tenosynovitis and its association with SMS Maryam Ali1, Muhammad Asim2, Syed Hasan Danish3,Farah Ahmad4, Afsheen Iqbal5 and Syed Danish Hasan6

The objective is to assess the frequency of de quervain's tenosynovitis and its association with SMS texting. When different hand movements over the past 2 weeks were compared with Finkelstein test significant P values were observed with certain movements. Twisting of keys showed that out of the total 149 students who had tested positive with Finkelstein test, 132 (89%) showed no difficulty in twisting keys while 16 (11%) showed mild difficulty (P value=0.005). Difficulty in opening the door showed that only 6 (4%) showed mild difficulty in opening the door. For buttoning the shirt only 12 (8%) showed mild difficulty (P value=0.001) mild difficulty in pinching was observed in 14 (9%) students who tested positive for Finkelstein Test (P value=0.009). Difficulty in unscrewing jar lid was observed in 15 (10%) individuals. Another 20(13%) students showed difficulty in gripping (P value=0.006). Significant number of students 38 (26%)had difficulty in typing on key board (P value=0.002). *Conclusion*-

The result of the study concluded that almost half of the students use their mobile phones for texting more than 50 SMS per day and because of their mobile key pads and high speed of texting they experienced pain and weakness over the base of the thumb/wrist which shows the de quervain's positive in that students and there is a positive association between the thumb pain and frequent text messaging.

4. A systematic review to determine the Effectiveness of Kinesiotaping for Dequervain's Tenosynovitis M. Charlene Guardia BHS

The objective to determine if kinesio taping has been shown to be an effective treatment for de quervain's tenosynovitis or other conditions similar to it.

Eleven articles were reviewed that used kinesio tape to study its effect on pain, decreased motion and/or function. Four articles were evaluated that used pain as an outcome measure. However the immediate statistically significant difference between groups no longer existed by day three. No short-term or long-term benefit related to pain occurred over a six-day period of tape application.

Conclusion-

Although the evidence is limited the reviewed studies did find small clinically significant changes in pain, range of motion and/or improvements in function. There is currently no gold standard for treating de quervain's tenosynovitis however the most effective treatment documented is an injection followed by splinting. Evidence did not support that kinesio taping was either beneficial or harmful for the treatment of de quervain's tenosynovitis however value and quality of life for a treatment is not typically reported in a scientific research paper. With this in mind if a client is wary of the injection and splinting is too restrictive it is reasonable to consider kinesio tape as an adjunct to conservative treatment for de quervain's tenosynovitis.

5. Computer users at risk: Health disorders associated With prolonged computer use Abide Ellahia, M. Shahid Khalilb, Fouzia Akrama

The objective of this study was to Investigate the association between extent of computer use (per day) and carpal tunnel syndrome, computer Stress syndrome, computer vision syndrome and musculoskeletal problems.

The study by using the survey approach tried to identify the trends of health disorders related to prolonged computer use. The results confirmed the prevalence of all investigated health disorders among employees and students. The presence of all disorders confirms the effects of electromagnetic field and additional risk factors like awkward posture on human health. A large number of respondents who are not facing all health disorders, Are confronted with computer vision syndrome. It means that human eyes are at most risks than any other part of body. The number of respondents having symptoms of carpal tunnel syndrome and musculoskeletal disorders problems was equal.

Conclusion:

This study has made an attempt to investigate the simultaneous pervasiveness of the most common computer related disorders among computer users which are carpal tunnel syndrome, computer related stress,computer vision syndrome and musculoskeletal disorders. Prolonged computer use (i.e more than four hours daily) creates several problems for its users. The simultaneous occurrence of several health problems associated with computer use among human beings means that human body is continuously subjected to more and more risks. By sitting in front of a computer, the individual actually enters into the room of biological menace. His hands, wrist, neck, shoulders, back, brain and most importantly eyes are captured by the invisible chains of carpal tunnel syndrome, computer related stress, computer vision syndrome and musculoskeletal disorders.

6. Frequency of De-Quervain Syndrome in Mobile Users Among Undergraduate Students of Allied Health Sciences Peshawar Sohail Iqbal', Hafsah Gul Khattak, Saba Aman, Kinza Anwar, Babar Ali, Hazrat Bilal Malakandi

The objectives is to determine the frequency of De Quervain syndrome in mobile users among under graduate students of allied health sciences Peshawar.

In the world of technology, use of mobile phones is increasing day by day and it is among one the necessities of life. (16) Younger generation is using mobile phone for texting and gaming purpose. Apart from its useful implication in advancement, the use of mobile makes the younger generation prone to musculoskeletal and repetitive strain injuries.(17) Frequent use of mobile phone is a trigger for de quervain syndrome.

Conclusion:

The study concluded that mobile phone users from different Institutes of Peshawar are prone to develop de quervain's syndrome due to repetitive movement of thumb while mobile texting, playing games without taking rest in between activities.

7. Comparison between Kinesio Taping and Physiotherapy in the Treatment of De Quervain's Disease Keynoosh Homayouni, Leila Zeynali And Elaheh Mianehsaz, Shiraz University of Medical Sciences, Shiraz, Iran Tehran University of Medical Sciences, Tehran, Iran

The purpose of this study was to compare the effects of a therapeutic Kinesio taping (KT) and Physical therapy (PT) modalities for the treatment of de Quervain's disease.

Patients with more than 4 weeks having de quervain disease (pain, swelling, tenderness over the first extensor compartment and a positive Finkelstein test) at ages 18 to 65 were included.

KT is a relatively new technique used in rehabilitation programs. Although it has been commonly used in orthopedic and sports settings, It is gradually becoming an adjunct treatment option for other musculoskeletal impairments. Its working mechanism is based on the taping direction and tension.

Conclusion –

It is theorized that Kinesio tape lifts the skin and takes pressure off the interstitial fluid providing better drainage and reducing inflammation. In this study, the success rate of the KT group was significantly greater than the PT group by 80%Versus 30%

8. Scientific evidence of kinesiotaping in physiotherapy and sports Review Article Elizaveta Taldykina, Serhii Kozin

The purpose of our research review was to analyze the available scientific data and determine how is the kinesiotaping method effective really.

We conducted research in the following areas: reduction of pain syndrome; improving the level of motor control, balance and coordination; increase in indicators of physical fitness of athletes; improvement of posture.In terms of pain reduction as a result of kinesio taping, it has been found that kinesiology tape may have limited potential to reduce pain in individuals with musculoskeletal injuries; However, depending on the setting, pain reduction may not be clinically significant [1, 2, 12, 13, 14].

Conclusion –

We found that the results of different authors regarding the effectiveness of the kinesio taping method for improving motor control [15, 17], balance and coordination are ambiguous [19, 20].

The analyzed studies give reason to assert that today there is no conflicting scientific evidence of the effectiveness of the use of kinesiology taping. It has been determined that kinesiology tape may have limited potential to reduce pain in individuals with musculoskeletal injuries. However, depending on the setting, the reduction in pain may not be clinically significant.

9. Effect of Tendon Gliding Exercises and Forearm Stretching on Speed of Writing among College Students Pratibha Pradip Pandekar1, Poonam H.Patil2

The objective of the study was to find the effect of tendon gliding exercises on speed of writing among college students. To find the effect of forearm stretching for the same.

After approval from institutional protocol and ethical committee, 64 students were selected as per the inclusion and exclusion criteria. Students, their parents and teachers were informed about the study and consent was taken . *Conclusion* – This study shows tendon gliding exercises and forearm stretching showed significant improvement in outcome measure concluding that it improves writing speed.The results of the study prove

that the tendon gliding exercises and forearm stretching are effective in improving writing speed among college students.

10. Combination Tendon and Nerve Gliding Exercise With Neurodynamic Mobilization to Improve Hand Function in Carpal Tunnel Syndrome Patient : A Case Report Dyah Sekaringtyas1, Taufik Eko Susilo2, Eko Prihati3

The purpose of this study was to determine the effectiveness of the combination of tendon and nerve gliding exercise with neurodynamic mobilization on increasing functional activity in patients with Carpal Tunnel Syndrome (CTS).

The patient should practice 3 to 5 times a week, every 10 repetitions. Each position is held for seven seconds (9).

It was reported that tendon and nerve gliding exercise resulted in significant improvement in CTS-related symptoms, including the severity of clinical symptoms in terms of pain and general functional status of patients in all study groups based on a metaanalysis by Kim, which identified 4 randomized controlled .

Conclusion –

The combination of giving tendon and nerve gliding exercise with neurodynamic mobilization can be an effective alternative mediating intervention for patients with CTS. The biomechanical effect of this exercise can reduce adhesion to carpal tunnel edema and restore nerve portability.

This case report can conclude that tendon and nerve gliding exercise combined with neurodynamic mobilization is effective in improving hand function in CTS patients.

Materials and Methodology

STUDY TYPE :- Comparative study

STUDY DESIGN :- Pre and Post experimental study

SITE OF STUDY :- In and around the nagpur city.

STUDY SETTING :- Indutai Gaikwad Patil college of physiotherapy

STUDY DURATION :- 6 months

TARGET POPULATION :- Computer users SAMPLE POPULATION :- De quervain tenosynovits SAMPLING METHOD :- Simple random sampling

Materials used

1) Kinesio tape
2) Scissor
3) Alcohol wipe
4) Stationary
5) Consent form
6) Data collection sheet
7) Patient information sheet

Method of selection of study

Inclusion Criteria

1) Age between 25-40 years old
2) Only computer users
3) Pain and swelling present over thumb area
4) VAS score ranges from 1 to 4 (mild)
5) Positive Finkelstein test

Exclusion Criteria

1) History of recent surgery of involving limb
2) History of recent trauma, pathological condition of the joint i.e fracture, cancer & inflammatory disease, congenital abnormalities or nerve root compression.
3) Any neurological or cardiac condition contraindicating the protocol.
4) Physiotherapy, acupuncture treatment, the use of exercise specifically for the thumb within the past months.

Withdrawal Criteria

Subjects who are willing to discontinue the treatment will be withdraw from the study .

Sample size = Total : 60 Assumptions:

1. Expected proportion = 67.3%
2. Absolute precision = 12
3. Desired confidence level = 95%

Following formula is used for estimating the sample size: $n=Z^2 1-\alpha\ p(1-p) / d^2$

where, Z1 is Standard Normal Score corresponding to 5% alpha error –1.96 p - 0.673

d - 0.12

Replacing above values,

$n = 1.962\ 0.673\ (1-0.673)/ (0.12)^2$

= 59

Approximately 60.

Material Required –

- Kinesio tape
- Scissor
- Alcohol wipe
- Stationary

- Patient information sheet
- Data collection sheet
- Consent form

Procedure

Ethical clearance was obtained from the institutional committee prior to the implementation of the study.

After screening the participants according to the inclusion and exclusion criteria, eligible individuals were recruited for the study.

The participants were given a thorough explanation of the study's purpose and methodology.

Each participant received an information sheet, and written informed consent indicating their willingness to participate.

Demographic details and other relevant characteristics of each participant were recorded.

Patients diagnosed with De Quervain's tenosynovitis who met the inclusion criteria were included in the study.

A total of 60 participants were enrolled and were divided into two groups using the odd-even method. Participants with even numbers were assigned to Group A (n = 30), and those with odd numbers were assigned to Group B (n = 30).

Following a brief explanation of the procedure, Group A received kinesiotaping for four weeks, while Group B performed tendon gliding exercises for four weeks.

For group A

Kinesiotaping :-

The patient sat with wrist in neutral position.

The therapist stood at the site of the affected part.

Preparation for taping:

1. The skin needed to be dry and clean.
2. If necessary, the area was shaved

Taping Instructions:- Shape: Y- shaped bar. Number of bands: 2

Technique: muscle technique (light pull).

Tape measure and tape measure: Measure two strips from your thumb to the middle of your forearm while sitting at a table. To make a Y tape that fits around your thumb, the tape was cut at one end.

Applying the tape :-

- The Y-tape was applied on both sides, and the thumb was given a small stretch. The taped area was gently massaged.
- After adjusting the base, the tape was split slightly, and the thumb was extended by applying the tape over the wrist and the thumb's root.

- For better adhesion, the tape was given a good rub.

- The second tape was applied using the same method as before, moving it diagonally from the first tape toward the forearm and over the back of the hand.

Step 1:

Step 2:

Step 3:

Step 4:

Step 5:

Step 6:

For group B

Tendon gliding exercises :-

The patient was in sitting position.

The therapist stood at the site of affected part .

- The patient kept their wrist in a neutral position when beginning the workouts. After they had the entire range of motion in your fingers, they procceded to the gliding exercises, which involved extension and flexion of the wrist to create combined arm and finger mobility.

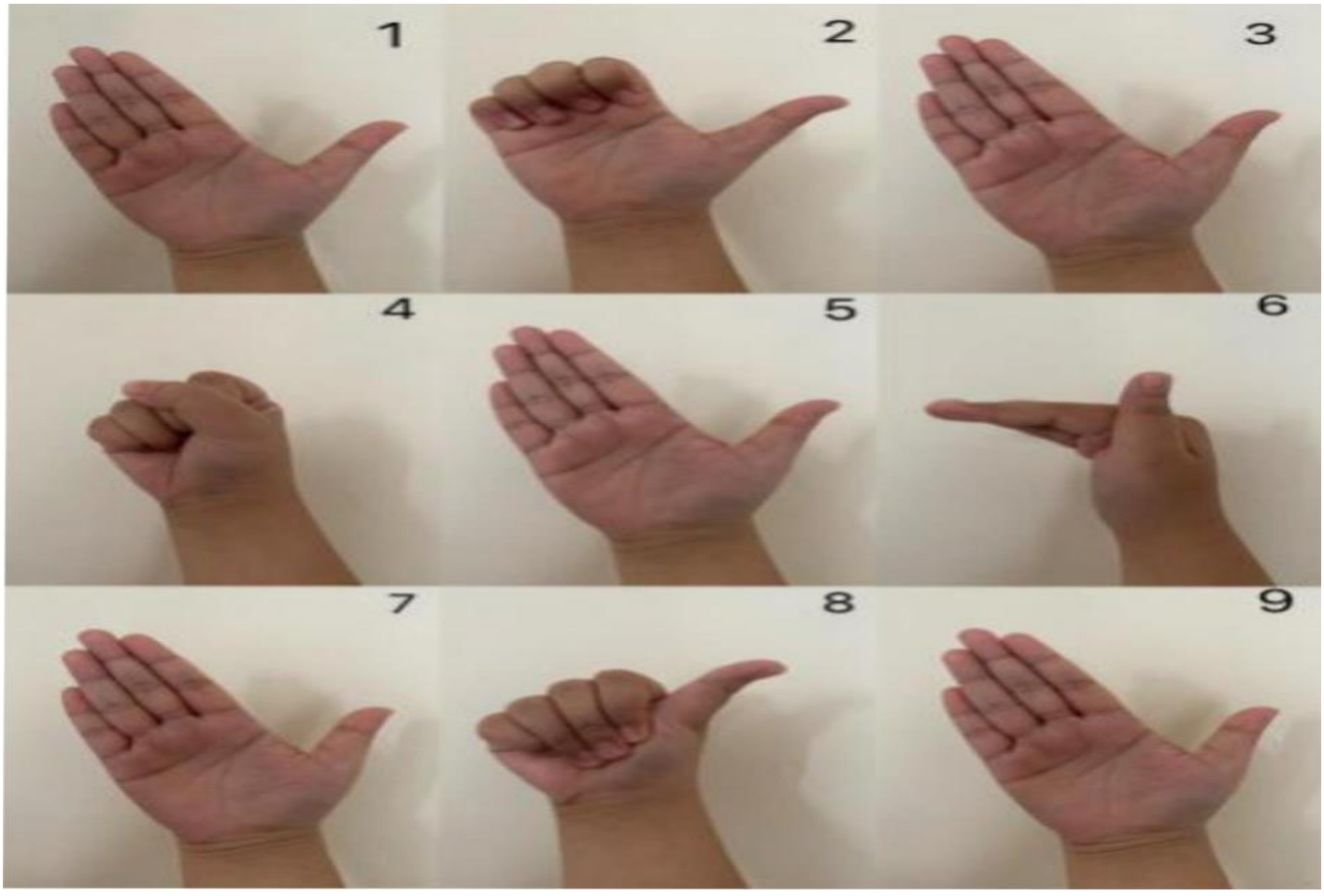
- Complete wrist and finger extension, followed by complete wrist and finger flexion, and finally reversing the motion, allowed for full tendon- gliding and excursion of all the extrinsic muscles.

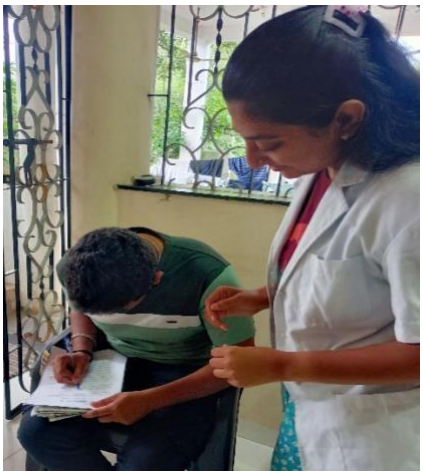
Hook (Claw) Fist Position :- The patient was asked to flex their DIP and PIP joints while keeping their MCP extended in order to transition from the straight hand to the hook fist position. The profundus tendon and the bone, as well as the profundus and superficialis tendons, glided together at their maximum angles. (The extensor digitorum communis tendons could also glide; this motion was employed in conjunction with extensor gliding workouts.)

Full Fist :- The patient encouraged to simultaneously flex all of their MCP and IP joints to the full fist position. The profundus tendon glided over the superficialis tendon and with the greatest amount of regard to the sheath and bone.

Straight Fist (Sublimis Fist) :- The patient was asked to flex their PIP joints while keeping their DIP joints extended in order to transition from the tabletop posture to a straight fist position. The superficialis tendon glided as smoothly as possible in relation to the bone and flexor sheath.

Thumb Flexion :- The patient was allowed to fully flex the thumb's MCP and IP joints. This encouraged the flexor Pollicis longus to glide as smoothly as possible.





Outcome Measures

1. Visual Analog Scale (VAS) –

Reliability – 0.96 *Validity - 0.84-0.97*

The visual analog scale for pain is the straight line with one end meaning no pain and at another end meaning the worst pain imaginable. A patient marks a point on the line that matches the amount of pain he or she feels. It may be used to help choose the right dose of pain medication. This scale is one of the most frequently used scale in daily practice. And the scale is very easy for patient to understand.

2. Thumb Disability Exam (TDX) –

Reliability – 0.953. *Validity – rs- 0.733.* *p- 0.001*

The questionnaire evaluates activities performed by patients

(I) Function assessment (11 items) – ranging from normal function (1 point), to complete dysfunction (5 points).

(II) Pain level (5 items) – considering the absence of pain (1point) until continuous pain (5 points).

(III) Satisfaction assessment in global hand and thumb characteristics (4 items) – ranging from a lot of dissatisfaction (1 point) to a lot of satisfaction (5 points).

The TDX questionnaire was considered of good methodological quality.

TDX: This test assesses the function of your thumbs during the past week. Please answer ALL questions. If you have not done any of the activities, please make your best estimate of how much you could do.

Please indicate your ability to perform the following tasks with the sick hand:

1. Turn the key (of a door)
   1. NO DIFFICULTIES
   2. SOME DIFFICULTY
   3. MODERATE DIFFICULTY
   4. STRONG DIFFICULTY
   5. UNABLE TO PERFORM

2. Pick up a coin with your fingertips
   1. NO DIFFICULTIES
   2. SOME DIFFICULTY
   3. MODERATE DIFFICULTY
   4. STRONG DIFFICULTY
   5. UNABLE TO PERFORM

3. Write
   1. NO DIFFICULTIES
   2. SOME DIFFICULTY
   3. MODERATE DIFFICULTY
   4. STRONG DIFFICULTY
   5. UNABLE TO PERFORM

4. Squeeze the toothpaste
   1. NO DIFFICULTIES
   2. SOME DIFFICULTY
   3. MODERATE DIFFICULTY
   4. STRONG DIFFICULTY
   5. UNABLE TO PERFORM

5. Holding a glass of water
   1. NO DIFFICULTIES
   2. SOME DIFFICULTY
   3. MODERATE DIFFICULTY
   4. STRONG DIFFICULTY
   5. UNABLE TO PERFORM

6. Rotate the round (ball-type) door handle
   1. NO DIFFICULTIES
   2. SOME DIFFICULTY
   3. MODERATE DIFFICULTY
   4. STRONG DIFFICULTY
   5. UNABLE TO PERFORM

7. Use a knife to cut food (which is on the plate)
   1. NO DIFFICULTIES
   2. SOME DIFFICULTY
   3. MODERATE DIFFICULTY
   4. STRONG DIFFICULTY
   5. UNABLE TO PERFORM

Please indicate how difficult it is to carry out the following tasks with both hands:

1. Open a bottle or jar with a tight or new screw cap
   1. NO DIFFICULTIES
   2. SOME DIFFICULTY
   3. MODERATE DIFFICULTY
   4. STRONG DIFFICULTY
   5. UNABLE TO PERFORM

2. Buttoning a shirt/blouse button
   1. NO DIFFICULTIES
   2. SOME DIFFICULTY
   3. MODERATE DIFFICULTY
   4. STRONG DIFFICULTY
   5. UNABLE TO PERFORM

3. Tie your shoelaces
   1. NO DIFFICULTIES
   2. SOME DIFFICULTY
   3. MODERATE DIFFICULTY
   4. STRONG DIFFICULTY
   5. UNABLE TO PERFORM

4. Wring clothes or cloths
   1. NO DIFFICULTIES
   2. SOME DIFFICULTY
   3. MODERATE DIFFICULTY
   4. STRONG DIFFICULTY
   5. UNABLE TO PERFORM

The following questions refer to when you feel pain in your sick thumb:

1 . How often did you feel pain in your thumb without movement (even when you do not move your thumb)?
   1. NEVER
   2. RARELY
   3. SOMETIMES
   4. FREQUENTLY
   5. ALWAYS

2. How often did the pain in your thumb hinder your daily activities (home, work, study)?
   1. NEVER
   2. RARELY
   3. SOMETIMES
   4. FREQUENTLY
   5. ALWAYS

3. How often did the pain in your hand interfere with your leisure or recreation activities?
   1. NEVER
   2. RARELY
   3. SOMETIMES
   4. FREQUENTLY
   5. ALWAYS

4. How often did the pain in your thumb disrupt your sleep?
   1. NEVER
   2. RARELY
   3. SOMETIMES
   4. FREQUENTLY
   5. ALWAYS

5. How often did the pain in your thumb worsen your mood (made you angry)?
   1. NEVER
   2. RARELY
   3. SOMETIMES
   4. FREQUENTLY
   5. ALWAYS

The following questions refer to your satisfaction with your sick hand and thumb during the past week:

1 Mobility of the sick thumb
   1. VERY SATISFIED
   2. SATISFIED
   3. NEITHER SATISFIED NOR DISSATISFIED
   4. DISSATISFIED
   5. VERY DISSATISFIED

2. Strength in the sick hand
   1. VERY SATISFIED
   2. SATISFIED
   3. NEITHER SATISFIED NOR DISSATISFIED
   4. DISSATISFIED
   5. VERY DISSATISFIED

3. Pain level in the sick thumb
   1. VERY SATISFIED
   2. SATISFIED
   3. NEITHER SATISFIED NOR DISSATISFIED
   4. DISSATISFIED
   5. VERY DISSATISFIED

4. General function of the sick hand
   1. VERY SATISFIED
   2. SATISFIED
   3. NEITHER SATISFIED NOR DISSATISFIED
   4. DISSATISFIED
   5. VERY DISSATISFIED

Statistical Analysis

Statistical analysis was carried out using Paired t- test and Unpaired t-test using SPSS (Statistical Package for the Social Sciences) software the data was summarized and the significant difference were observed.

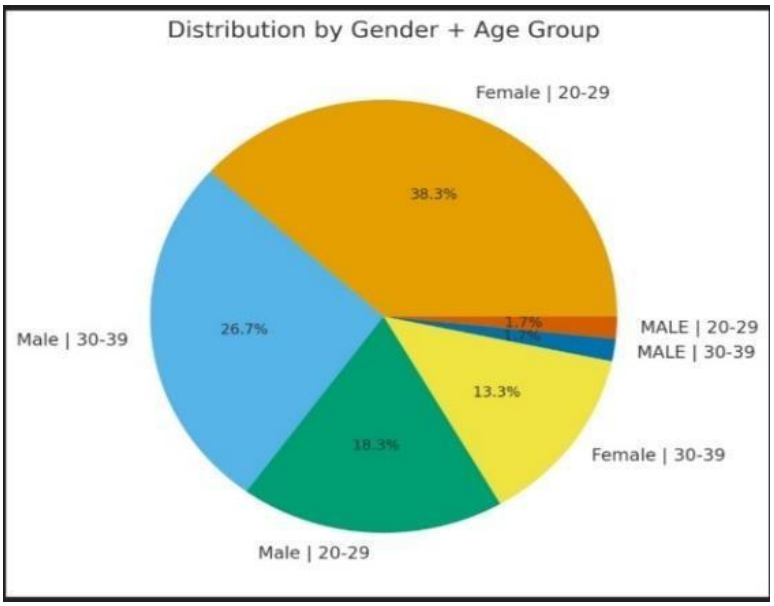
Result

According to the collected data, the demographic distribution revealed that the majority of participants were females aged 20-29 years (38.3%), followed by males aged 30-39 years (26.7%) and males aged 20-29 years (18.3%).

Analysis of pain intensity showed a significant reduction in the mean VAS score, decreasing from 3.1 pre-treatment to 1.3 post-treatment, indicating effective pain relief following the intervention.

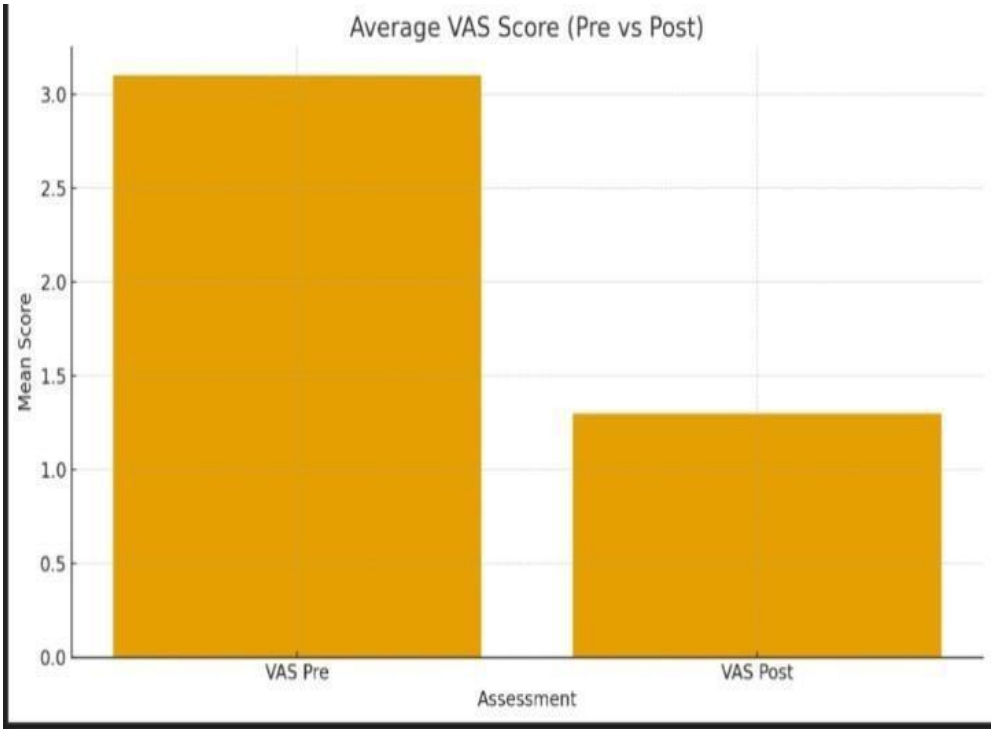
Similarly, the TDX questionnaire components demonstrated notable improvements, with all three domains-Function, Pain Level, and Satisfaction-showing marked decreases in post-treatment scores compared to pre-treatment values, reflecting enhanced functionality, reduced pain, and greater overall satisfaction.

Additionally, the Thumb Disability Index (TDI) showed a substantial decline from
7 at baseline to 1.4 post-treatment, confirming a significant improvement in thumb-related disability.



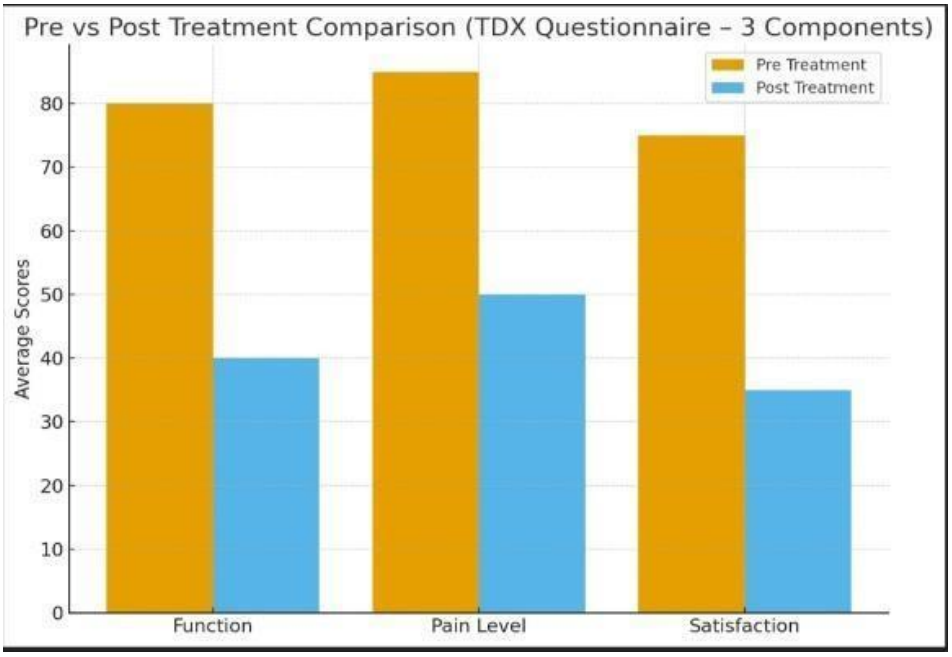
Graph no. 1 : based on age group and gender

The pie chart shows that most participants were females aged 20–29 years (38.3%), followed by males aged 30–39 years (26.7%) and males aged 20–29 years (18.3%). Females aged 30–39 years formed 13.3% of the sample. Very small proportions (1.7% each) belonged to other categories due to minor labeling inconsistencies. Overall, the sample was mainly composed of adults aged 20–39 years, with a higher representation of younger females.



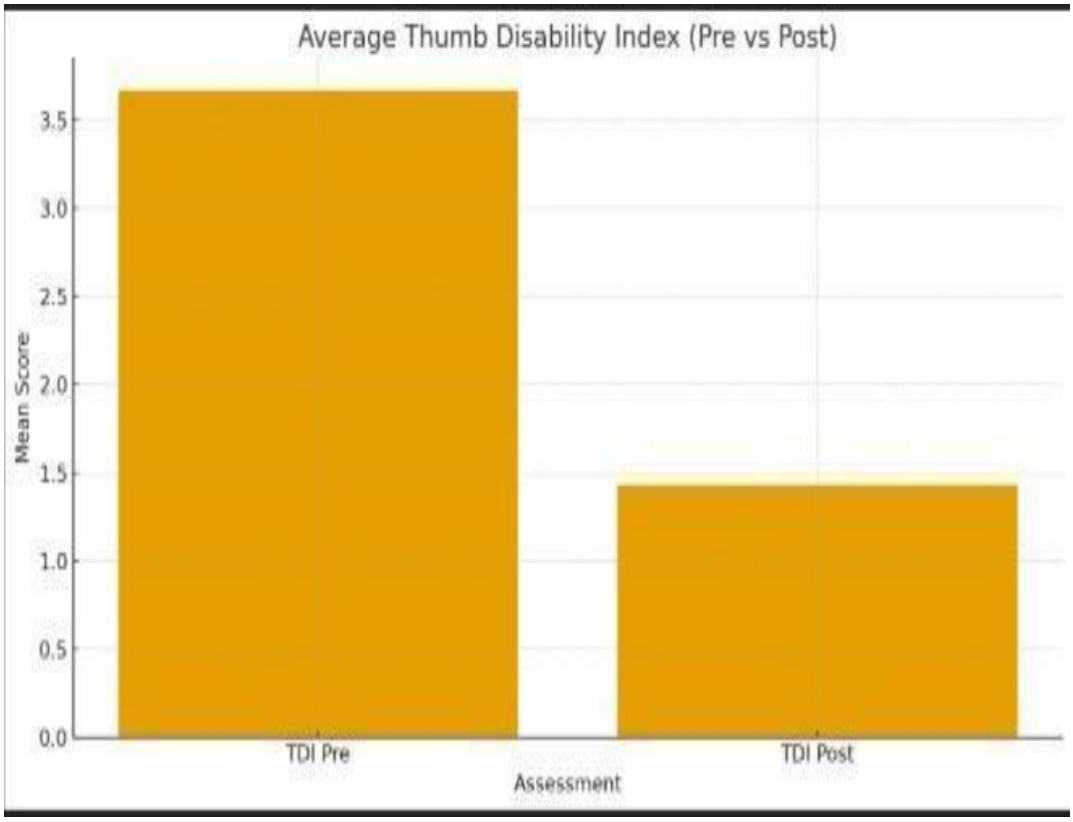
Graph no. 2 – based on VAS score

The bar graph shows a clear reduction in pain levels following the intervention. The average VAS score decreased from approximately 3.1 pre-treatment to about 1.3 post-treatment, indicating a significant improvement in perceived pain. This demonstrates that the treatment was effective in reducing pain intensity among participants.



Graph no 3. :- based on Thumb Disability Index

The bar graph compares the pre- and post-treatment scores across the three components of the TDX questionnaire. All components—Function, Pain Level, and Satisfaction—show a clear reduction in scores after treatment. Pre-treatment scores were markedly higher (indicating greater dysfunction, pain, and dissatisfaction), whereas post-treatment scores were significantly lower, demonstrating improved function, reduced pain, and enhanced satisfaction following the intervention.



The bar graph demonstrates a marked reduction in the Thumb Disability Index following treatment. The mean TDI score decreased from approximately 3.7 pre- treatment to about 1.4 post-treatment, indicating a substantial improvement in thumb function and a significant reduction in disability after the intervention.

Discussion

The present study aimed to compare the effectiveness of kinesiotaping and tendon gliding exercises on pain reduction and functional improvement in computer users diagnosed with De Quervain's tenosynovitis. The findings demonstrated a significant reduction in pain (VAS) and improvement in thumb function (TDX score) in both intervention groups, with kinesiotaping (Group A) showing comparatively higher improvement than tendon gliding exercises (Group B).

In the present study, the majority of participants were young computer users aged 20-29 years, which supports previous literature indicating that repetitive thumb movements during prolonged mobile or computer use increase the likelihood of developing De Quervain's tenosynovitis.

Similar demographic ds were reported by Layba Awais et al., who found a high prevalence of De Quervain's among computer operators due to repetitive strain and excessive thumb use.

A notable finding In our study was the marked post-treatment reduction in mean VAS scores (from 3.1 to 1.3). This aligns with the study conducted by Ismail Eralp et al., titled "Efficacy of Kinesiologic Taping in De De Quervain's Tenosynovitis," which concluded that kinesiotaping significantly reduces pain and improves thumb mobility by decreasing local inflammation and enhancing tissue healing. Our study findings corroborate this evidence, as patients in the kinesiotaping group showed superior pain reduction and better satisfaction scores on the TDX scale.

Regarding tendon gliding exercises, the results showed a significant improvement as well, though comparatively lower than kinesiotaping. This is consistent with the findings of Pratibha Pandekar et al., who reported that tendon gliding exercises effectively enhance movement and reduce mechanical stress across tendon sheaths.

Tendon gliding promotes smooth tendon excursion, reduces adhesions, and improves hand function, which aligns with the improvements observed in Group B.

Additionally, several studies reviewed in the dissertation, including those related to mobile phone use and repetitive texting, support the premise that repetitive thumb movements contribute to cumulative microtrauma and inflammation, reinforcing the need for rehabilitation strategies such as kinesiotaping and tendon gliding.

Overall, the results of the current study indicate that while both interventions are beneficial, kinesiotaping produced better outcomes in terms of pain relief, functional improvement, and patient satisfaction. This could be attributed to its biomechanical effects-skin lifting, decreased pressure on pain receptors, improved lymphatic drainage, and enhanced movement patterns without restricting activity.

Thus, the findings suggest that kinesiotaping may serve as an effective conservative treatment for managing mild cases of De Quervain's tenosynovitis among computer users, either alone or in combination with therapeutic exercises.The study supports existing literature and provides substantial evidence that early physiotherapy intervention can improve symptoms and prevent chronic disability.

Conclusion

Based on the findings of the present study, carried out among computer users diagnosed with De Quervain's Tenosynovitis, it can be concluded that both physiotherapy interventions-Kinesiotaping (Group A) and Tendon Gliding Exercises (Group B)-were effective in reducing symptoms and improving functional outcomes. The study population primarily consisted of females aged 20- 29 years, followed by males in the 30-39 year age group, reflecting the higher prevalence of repetitive strain conditions among young adult computer users.

Across outcome measures-including the Visual Analogue Scale (VAS) for pain, the Thumb Disability Index (TDI), and the TDX Questionnaire components (Function, Pain Level, and Satisfaction)-a significant reduction in scores was observed post-treatment in both groups. These improvements indicate decreased pain intensity, enhanced thumb function, increased satisfaction, and reduced disability following the respective interventions.

Overall, the study demonstrates that structured physiotherapy management yields substantial benefits for individuals with De Quervain's Tenosynovitis, particularly those engaged in prolonged computer use. Both Kinesiotaping and Tendon Gliding Exercises contribute positively to symptom relief; however, the comparative effectiveness may guide clinicians to select the most suitable intervention based on patient needs and occupational demands. The results support the incorporation of these therapeutic techniques into routine rehabilitation programs for managing repetitive strain injuries of the thumb and wrist.

Clinical Implications

The findings of this study indicate that both Kinesiotaping and Tendon Gliding Exercises are effective conservative treatments for reducing pain and improving thumb function in individuals with De Quervain's tenosynovitis, especially among computer users who frequently perform repetitive thumb movements.

These interventions are simple, non-invasive, and can be easily incorporated into routine physiotherapy practice.

Kinesiotaping provides support and pain relief during daily activities, while tendon-gliding exercises enhance tendon mobility and reduce functional disability.

Clinicians can confidently integrate these techniques into rehabilitation programs to promote faster recovery and prevent symptom recurrence.

Future Scope

- Future studies can include larger and more diverse populations to improve generalizability.
- Long-term follow-up is needed to evaluate the sustained benefits and recurrence rates after both interventions.
- Comparative studies can evaluate tendon gliding and kinesiotaping against other physiotherapy modalities or combined therapy programs.
- Further research may explore effects on work productivity, ergonomics, and recurrence prevention in repetitive-strain occupations.
- Additional studies can investigate whether combining both techniques provides superior outcomes.

Limitation

- The study sample was limited to 60 participants, which may restrict generalizability to larger populations.
- Only short-term outcomes were assessed; long-term effects of the interventions remain unknown.
- The study included only computer users, limiting applicability to other occupational groups.
- Tendon gliding and kinesiotaping were not compared with other advanced physiotherapy techniques or medical Treatments.

Summary

The study demonstrated that both Kinesiotaping and Tendon Gliding Exercises significantly reduced pain and thumb disability in individuals with De Quervain's Tenosynovitis, particularly computer users.

Post-treatment scores on VAS, TDI, and TDX components all showed marked improvement, confirming the effectiveness of both interventions.

Both techniques were found to be simple, non-invasive, and effective in improving function and reducing discomfort associated with repetitive thumb strain.

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ANNEXURE -A

PATIENT INFORMATION SHEET

TITLE- **"Effectiveness of kinesiotaping verses tendon gliding exercises for de quervain tenosynovitis in the computer users : A Comparative study"**

Introduction:- You are enrolled in these research study. It is important that you read these description of the study and understand role in it, including the nature and risks of participation. Please give your consent to participate in these clinical study only if you completely understood the nature and the course of this study and if you are aware rights as participant.

Purpose of the study:- To find the effects of kinesiotaping versus tendon gliding exercises in patient of de quervain tenosynovitis in the computer users .

Study procedure to be followed

1. Trained physiotherapist will carry out the procedure. You will be asked for previous medical problem, current health and medication history. Formal evaluation of the age, vitals will be done. You will be allocated to group randomly. According the group you will be given the treatment with kinesiotaping and tendon gliding exercises.

2. Risk and discomforts of the participants: There will be no risk or discomfort of patient during these study. Necessary precautions will be taken. Any new important information i.e discovered during the study and which may influence your decision to continue in these study will be provided to you in a timely manner.

3. Possible benefits of the study: patient will benefit from relieving pain of thumb after treatment.

4. Compensation: Participation in these study will be at NO cost. NO compensation will be given to the participant or any of his relatives.

5. Confidentiality: All the study records will be kept confidential at all the time. You will not give up any of her/his legal rights by signing these form. His/her identity will not be revealed. The results of the treatment may be published for scientific reasons. Her/ his identity will not be revealed in any publications.

6. Contact for further information: If you have any questions now or later, even after the study has completed you can contact the investigator.

Thank you for taking time to read the information about these study. Before you sign these document, you should ask question about anything that you do not understand. The study staff will answer questions before, during and after the study.

Date:_____/__/____

Name & Signature:_____

परिशिष्ट – A

रोगी सूचना पत्रक

शीर्षक – "कंप्यूटर उपयोगकर्ताओं में डि-क्वेर्वेन टेनोसिनोवाइटिस के लिए किनेशियो-टेपिंग बनाम टेंडन ग्लाइडिंग एक्सरसाइज की प्रभावशीलता : एक तुलनात्मक अध्ययन"

परिचय :आप इस शोध अध्ययन में भाग ले रहे हैं। कृपया इस अध्ययन के विवरण को ध्यान से पढ़ें और इसमें आपकी भूमिका तथा इसमें भाग लेने से जुड़ी प्रकृति और संभावित जोखिमों को समझें। इस अध्ययन के उद्देश्य और प्रक्रिया को पूरी तरह समझने के बाद ही अपनी सहमति दें।

अध्ययन का उद्देश्य :कंप्यूटर उपयोग करने वाले डि-क्वेर्वेन टेनोसिनोवाइटिस रोगियों में किनेशियो-टेपिंग और टेंडन ग्लाइडिंग एक्सरसाइज के प्रभावों की तुलना करना।

अध्ययन की प्रक्रिया :

1. प्रशिक्षित फिजियोथेरेपिस्ट प्रक्रिया को पूरा करेंगे। आपसे आपका पूर्व चिकित्सा इतिहास, वर्तमान स्वास्थ्य स्थिति और दवाओं के उपयोग के बारे में पूछा जाएगा। आपकी उम्र व जीवनचिन्हों का मूल्यांकन किया जाएगा। आपको यादृच्छिक रूप से किसी एक समूह में शामिल किया जाएगा। जिस समूह में आप होंगे, उसी के अनुसार आपको किनेशियो-टेपिंग या टेंडन ग्लाइडिंग एक्सरसाइज का उपचार।

2. जोखिम और असुविधाएं :अध्ययन के दौरान रोगी को किसी प्रकार का जोखिम या असुविधा नहीं होगी। सभी आवश्यक सावधानियाँ बरती जाएँगी। अध्ययन के दौरान किसी भी महत्वपूर्ण नई जानकारी की खोज होने पर, जो आपके निर्णय को प्रभावित कर सकती है, आपको तुरंत सूचित किया जाएगा।

3. अध्ययन के संभावित लाभ : उपचार के बाद अंगूठे के दर्द में कमी आने का लाभमिलेगा।

4. प्रतिपूर्ति : इस अध्ययन में भाग लेना पूरी तरह निःशुल्क है। किसी भी प्रतिभागी या उसके परिजनों को कोई आर्थिक सहायता या प्रतिपूर्ति नहीं दी जाएगी।

5. गोपनीयता :अध्ययन से संबंधित सभी रिकॉर्ड गोपनीय रखे जाएँगे। इस फॉर्म पर हस्ताक्षर करने से आप अपने किसी भी कानूनी अधिकार को नहीं छोड़ेंगे। आपकी पहचान गोपनीय रखी जाएगी। उपचार के परिणाम वैज्ञानिक उद्देश्यों से प्रकाशित किए जा सकते हैं, लेकिन किसी भी प्रकाशन में आपकी पहचान प्रकट नहीं की जाएगी।

6. अधिक जानकारी के लिए संपर्क :यदि आपके पास अभी या अध्ययन के बाद किसी भी समय प्रश्न हों, तो आप अन्वेषक से संपर्क कर सकते हैं।

इस अध्ययन की जानकारी पढ़ने के लिए धन्यवाद। इस दस्तावेज़ पर हस्ताक्षर करने से पहले आपको जो भी समझ में न आए, उसके बारे में प्रश्न पूछें। अध्ययन कर्मचारी अध्ययन से पहले, अध्ययन के दौरान और अध्ययन समाप्त होने के बाद

भी आपके प्रश्नों का उत्तर देंगे।

दिनांक :___/___/_____

नाम और हस्ताक्षर :_____

परिशिष्ट – A

रुग्ण माहिती पत्रक

शीर्षक – "कंप्युटर वापरणाऱ्या रुग्णांमध्ये डि-क्रेर्वेन टेनोसिनोव्हायटिससाठी किनेशिओटेपिंग वि. टेंडन ग्लायडिंग व्यायाम यांची परिणामकारकता : एक तुलनात्मक अभ्यास"

परिचय : आपण या संशोधन अभ्यासामध्ये सहभागी होत आहात. कृपया हे माहितीपत्रक नीट वाचा आणि आपल्या सहभागाची भूमिका, तसेच या अभ्यासाचे स्वरूप आणि त्यातील संभाव्य धोके समजून घ्या. अभ्यासाचा पूर्ण स्वरूप समजल्यावर आणि सहभागी म्हणून आपले हक्क समजल्यावरच कृपया या क्लिनिकल अभ्यासात सहभागी होण्यास संमती द्या.

अभ्यासाचा उद्देश :कंप्युटर वापरणाऱ्या डि-क्रेर्वेन टेनोसिनोव्हायटिस असलेल्या रुग्णांमध्ये किनेशिओटेपिंग आणि टेंडन ग्लायडिंग व्यायाम यांच्या परिणामकारकतेची तुलना करणे.

अभ्यासाची प्रक्रिया :

1. प्रशिक्षित फिजिओथेरपिस्ट प्रक्रिया पार पाडतील. आपल्याकडून पूर्वीचे वैद्यकीय इतिहास, सध्याची तब्येत व औषधांच्या वापराबद्दल माहिती विचारली जाईल. वय आणि जीवनचिन्हे यांचे औपचारिक मूल्यांकन केले जाईल. आपणास यादृच्छिक पद्धतीने गटांमध्ये वाटप केले जाईल. आपण ज्या गटात असाल त्यानुसार आपल्याला किनेशिओटेपिंग किंवा टेंडन ग्लायडिंग व्यायामांचे उपचार दिले जातील.

2. जोखीम आणि अस्वस्थता : या अभ्यासादरम्यान रुग्णाला कोणताही धोका किंवा अस्वस्थता होणार नाही. सर्व आवश्यक काळजी घेतली जाईल. अभ्यासादरम्यान कोणतीही नवीन महत्त्वाची माहिती मिळाल्यास ती आपणास त्वरित कळविली जाईल.

3. अभ्यासाचे संभाव्य फायदे : उपचारानंतर अंगठ्याच्या वेदनेत आराम मिळण्याचा फायदा होईल.

4. भरपाई : या अभ्यासामध्ये सहभाग पूर्णपणे विनामूल्य आहे. सहभागी किंवा त्यांच्या नातेवाईकांना कोणतीही आर्थिक मदत किंवा भरपाई दिली जाणार नाही.

5. गोपनीयता : अभ्यासाशी संबंधित सर्व नोंदी गोपनीय ठेवण्यात येतील. हा फॉर्म स्वाक्षरी केल्याने आपण कोणतेही कायदेशीर अधिकार गमावणार नाही. आपली ओळख उघड केली जाणार नाही. वैज्ञानिक कारणांसाठी अभ्यासाचे निष्कर्ष प्रकाशित केले जाऊ शकतात, परंतु आपली ओळख कोणत्याही प्रकाशनात उघड केली जाणार नाही.

6. संपर्क : अभ्यासादरम्यान किंवा अभ्यास पूर्ण झाल्यानंतर आपल्याला कोणतेही प्रश्न असल्यास आपण तपासक यांच्याशी संपर्क साधू शकता.

आपण हे माहितीपत्रक वाचल्याबद्दल धन्यवाद. कृपया हा दस्तऐवज स्वाक्षरी करण्यापूर्वी, कोणताही भाग समजला नसेल तर प्रश्न विचारावेत. अभ्यास कर्मचारी अभ्यासाच्या आधी, दरम्यान आणि नंतर आपले सर्व प्रश्नांची उत्तरे देतील.

दिनांक :__/__/_____

नाव व स्वाक्षरी : _____

ANNEXURE -B

CONSENT FORM

STUDY TITLE :- "Effectiveness of kinesiotaping verses tendon gliding exercises for de quervain tenosynovitis in the computer users : A Comparative study"

Subject name :-

Age/Gender:- Occupation :-

1. I confirm that I have read and understood the information sheet dated for the above study and have had the opportunity to ask the questions. [ ]
2. I understand that my participate in the study is voluntary and that I am free to withdraw at anytime without any reason without my medical card or legal rights being affected. [ ]
3. I understand the sponsor, the investigator and the others working on the sponsor's behalf, the ethics committee and the regulatory authorities will not need my permission to look at my health records both in respect of the current study and any further research that may be conducted in relation to it, even if I withdraw from the trial. I agree to these access however I understand that my identity will not be revealed in any information released to third parties or published. [ ]
4. I agree not to restrict the use of any data or research that arise from the study, provided such a use is only for scientific purpose(s). [ ]
5. I agree to participate in the above study. [ ]

Signature or thumb impression of the subject/legally acceptable representative :

Signatory's name : Date :

Name & Signature of witness : Date :

Name & Signature of Investigator : Date :

परिशिष्ट – B

अनुमति पत्र

अध्ययन का शीर्षक :"कंप्यूटर उपयोगकर्ताओं में डि-क्वेर्वेन टेनोसिनोवाइटिस के लिए किनेशियो-टेपिंग बनाम टेंडन ग्लाइडिंग एक्सरसाइज की प्रभावशीलता : एक तुलनात्मक अध्ययन"

विषय का नाम :

आयु/लिंग : व्यवसाय :

1. मैं पुष्टि करता/करती हूँ कि मैंने उपरोक्त अध्ययन के लिए दिनांक का सूचना पत्रक पढ़ा और समझा है तथा मुझे प्रश्न पूछने का अवसर मिला है। []

2. मुझे समझ है कि अध्ययन में मेरी भागीदारी स्वैच्छिक है और मैं बिना किसी कारण बताए किसी भी समय अध्ययन छोड़ सकता/सकती हूँ, और इससे मेरे चिकित्सा उपचार या कानूनी अधिकार प्रभावित नहीं होंगे। []

3. मुझे समझ है कि प्रायोजक, अन्वेषक, प्रायोजक की ओर से कार्य करने वाले व्यक्ति, नैतिक समिति और नियामक प्राधिकरणों को मेरे स्वास्थ्य अभिलेख देखने के लिए मेरी अलग अनुमति की आवश्यकता नहीं होगी चाहे वह वर्तमान अध्ययन के लिए हो या भविष्य में इसी विषय से संबंधित किसी अन्य शोध के लिए -भले ही मैं अध्ययन से हट जाऊँ। मैं इस अनुमति हेतु सहमत हूँ, और समझता/समझती हूँ कि किसी भी तृतीय पक्ष को दी जाने वाली या प्रकाशित जानकारी में मेरी पहचान प्रकट नहीं की जाएगी। []

4. मैं सहमत हूँ कि अध्ययन से प्राप्त किसी भी डेटा या शोध के वैज्ञानिक उपयोग पर मैं कोई प्रतिबंध नहीं लगाऊँगा/लगाऊँगी। []

5. मैं उपरोक्त अध्ययन में भाग लेने के लिए सहमत हूँ। []

विषय/कानूनी रूप से स्वीकार्य प्रतिनिधि के हस्ताक्षर या अंगूठे का निशान :

हस्ताक्षरकर्ता का नाम : दिनांक :

साक्षी का नाम और हस्ताक्षर : दिनांक :

अन्वेषक का नाम और हस्ताक्षर : दिनांक :

परिशिष्ट – B

संमतीपत्र

अभ्यासाचे शीर्षक : "कंप्युटर वापरणाऱ्या व्यक्तींमध्ये डि-क्वेर्वेन टेनोसिनोव्हायटिससाठी किनेशिओटेपिंग वि. टेंडन ग्लायडिंग व्यायाम यांची परिणामकारकता : एक तुलनात्मक अभ्यास"

विषयाचे नाव :

वय/लिंग : व्यवसाय :

1. मी वरील अभ्यासाशी संबंधित माहितीपत्रक वाचले असून ते समजले आहे आणि मला प्रश्न विचारण्याची संधी मिळाली आहे, याची मी पुष्टी करतो/करते. []

2. मला समजते की या अभ्यासामध्ये माझा सहभाग स्वेच्छिक आहे आणि कोणतेही कारण न देता मी कोणत्याही वेळी अभ्यासातून बाहेर पडू शकतो/शकते, आणि त्यामुळे माझ्या वैद्यकीय उपचारांवर किंवा कायदेशीर अधिकारांवर कोणताही परिणाम होणार नाही. []

3. मला समजते की प्रायोजक संस्था, संशोधक, प्रायोजकाच्या वतीने काम करणारी व्यक्ती, नैतिक समिती आणि नियामक प्राधिकरणे, माझ्या आरोग्य नोंदी पाहण्यासाठी माझी स्वतंत्र परवानगी घेणार नाहीत-सध्याच्या अभ्यासासाठी तसेच भविष्यात याच विषयाशी संबंधित अन्य संशोधनांसाठी-जरी मी अभ्यासातून बाहेर पडलो/पडले तरीही. मी या प्रवेशास सहमती देतो/देते; तथापि, कोणत्याही तृतीय पक्षास किंवा प्रकाशनांमध्ये माझी ओळख उघड केली जाणार नाही, हे मला समजते. []

4. या अभ्यासातून निर्माण होणाऱ्या कोणत्याही डेटाच्या किंवा संशोधनाच्या वैज्ञानिक उपयोगावर मी कोणतीही बंधने आणणार नाही, मी सहमती देतो/देते. []

5. मी वरील अभ्यासात सहभागी होण्यास सहमती देतो/देते. []

विषयाची / कायदेशीररित्या स्वीकृत प्रतिनिधीची सही किंवा अंगठ्याचा ठसा :

स्वाक्षरी कणाऱ्याचे नाव : दिनांक :

साक्षीदाराचे नाव आणि स्वाक्षरी : दिनांक :

संशोधकाचे नाव आणि स्वाक्षरी : दिनांक :

ANNEXURE – C

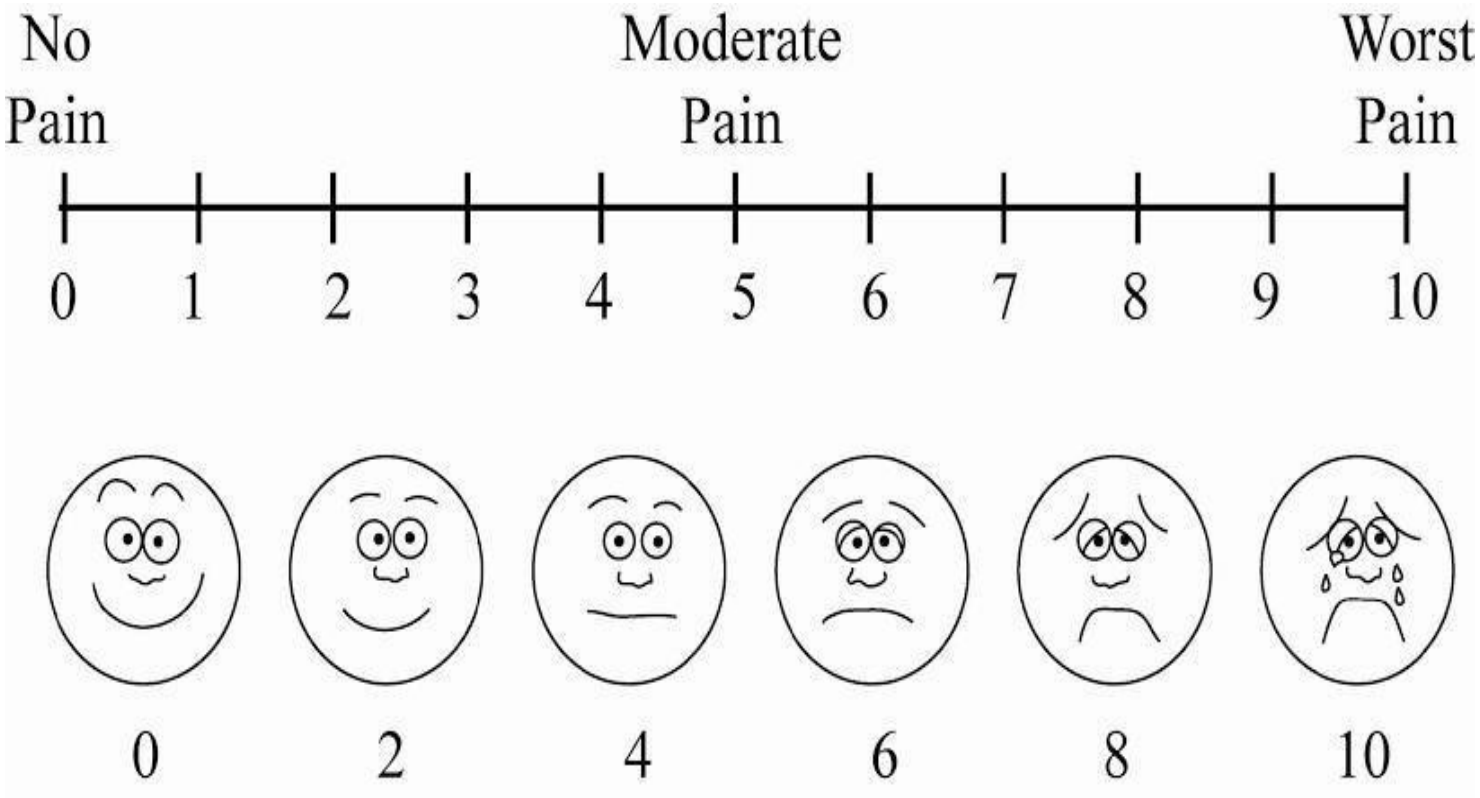
CASE RECORD FORM

Name		
Age		
Gender		
Occupation		
Chief complaint		
Date treatment		
Date of completion		
Treatment duration		
VAS Scale Thumb Disability Exam		

ANNEXURE – D

Scales

Visual Analog Scale (VAS SCALE)



Thumb Disability Exam (TDX)

TDX: This test assesses the function of your thumbs during the past week. Please answer ALL questions. If you have not done any of the activities, please make your best estimate of how much you could do.

Please indicate your ability to perform the following tasks with the sick hand:

1. Turn the key (of a door)
   1. NO DIFFICULTIES
   2. SOME DIFFICULTY
   3. MODERATE DIFFICULTY
   4. STRONG DIFFICULTY
   5. UNABLE TO PERFORM

2. Pick up a coin with your fingertips
   1. NO DIFFICULTIES
   2. SOME DIFFICULTY
   3. MODERATE DIFFICULTY
   4. STRONG DIFFICULTY
   5. UNABLE TO PERFORM

3. Write
   1. NO DIFFICULTIES
   2. SOME DIFFICULTY
   3. MODERATE DIFFICULTY
   4. STRONG DIFFICULTY
   5. UNABLE TO PERFORM

4. Squeeze the toothpaste
   1. NO DIFFICULTIES
   2. SOME DIFFICULTY
   3. MODERATE DIFFICULTY
   4. STRONG DIFFICULTY
   5. UNABLE TO PERFORM

5. Holding a glass of water
   1. NO DIFFICULTIES
   2. SOME DIFFICULTY
   3. MODERATE DIFFICULTY
   4. STRONG DIFFICULTY
   5. UNABLE TO PERFORM

6. Rotate the round (ball-type) door handle
   1. NO DIFFICULTIES
   2. SOME DIFFICULTY
   3. MODERATE DIFFICULTY
   4. STRONG DIFFICULTY
   5. UNABLE TO PERFORM

7. Use a knife to cut food (which is on the plate)
   1. NO DIFFICULTIES
   2. SOME DIFFICULTY
   3. MODERATE DIFFICULTY
   4. STRONG DIFFICULTY
   5. UNABLE TO PERFORM

Please indicate how difficult it is to carry out the following tasks with both hands:

1. Open a bottle or jar with a tight or new screw cap
   1. NO DIFFICULTIES
   2. SOME DIFFICULTY
   3. MODERATE DIFFICULTY
   4. STRONG DIFFICULTY
   5. UNABLE TO PERFORM

2. Buttoning a shirt/blouse button
   1. NO DIFFICULTIES
   2. SOME DIFFICULTY
   3. MODERATE DIFFICULTY
   4. STRONG DIFFICULTY
   5. UNABLE TO PERFORM

3. Tie your shoelaces
   1. NO DIFFICULTIES
   2. SOME DIFFICULTY
   3. MODERATE DIFFICULTY
   4. STRONG DIFFICULTY
   5. UNABLE TO PERFORM

4. Wring clothes or cloths
   1. NO DIFFICULTIES
   2. SOME DIFFICULTY
   3. MODERATE DIFFICULTY
   4. STRONG DIFFICULTY
   5. UNABLE TO PERFORM

The following questions refer to when you feel pain in your sick thumb:

1 . How often did you feel pain in your thumb without movement (even when you do not move your thumb)?
   1. NEVER
   2. RARELY
   3. SOMETIMES
   4. FREQUENTLY
   5. ALWAYS

2. How often did the pain in your thumb hinder your daily activities (home, work, study)?
   1. NEVER
   2. RARELY
   3. SOMETIMES
   4. FREQUENTLY
   5. ALWAYS

3. How often did the pain in your hand interfere with your leisure or recreation activities?
   1. NEVER
   2. RARELY
   3. SOMETIMES
   4. FREQUENTLY
   5. ALWAYS

4. How often did the pain in your thumb disrupt your sleep?
   1. NEVER
   2. RARELY
   3. SOMETIMES
   4. FREQUENTLY
   5. ALWAYS

5. How often did the pain in your thumb worsen your mood (made you angry)?
   1. NEVER
   2. RARELY
   3. SOMETIMES
   4. FREQUENTLY
   5. ALWAYS

The following questions refer to your satisfaction with your sick hand and thumb during the past week:

1 Mobility of the sick thumb
   1. VERY SATISFIED
   2. SATISFIED
   3. NEITHER SATISFIED NOR DISSATISFIED
   4. DISSATISFIED
   5. VERY DISSATISFIED

2. Strength in the sick hand
   1. VERY SATISFIED
   2. SATISFIED
   3. NEITHER SATISFIED NOR DISSATISFIED
   4. DISSATISFIED
   5. VERY DISSATISFIED

3. Pain level in the sick thumb
   1. VERY SATISFIED
   2. SATISFIED
   3. NEITHER SATISFIED NOR DISSATISFIED
   4. DISSATISFIED
   5. VERY DISSATISFIED

4. General function of the sick hand
   1. VERY SATISFIED
   2. SATISFIED
   3. NEITHER SATISFIED NOR DISSATISFIED
   4. DISSATISFIED
   5. VERY DISSATISFIED

Master Chart

Sr.no	Name	Age	Gender	VAS		Thumb Disability Index	
				pre	post	pre	post
1	TEJASWINI DRUGKAR	26	Female	4	2	3	2
2	PRAVIN WADATKAR	33	Male	3	1	5	2
3	KOMAL CHAVAN	32	Female	4	1	4	2
4	PRAFUL AGARKAR	26	Male	2	1	3	1
5	RUTUJA DESHMUKH	33	Female	3	1	5	2
6	SHREYAS RANADE	29	Male	4	2	3	2
7	SNEHA PATIL	28	Female	2	1	3	1
8	VAIBHAV SATHE	35	Male	4	2	5	3
9	LEENA KAWALKAR	39	Female	4	2	4	2
10	PRANAY MOKALKAR	27	Male	3	1	3	1
11	ANJALI SHARMA	30	Female	2	1	3	1
12	SALONI SHAH	34	Female	4	2	5	2
13	PIYUSH THAKARE	37	Male	3	1	4	1
14	PRANIT DESHPANDE	29	Male	2	1	3	1
15	DARSHAN MESHRAM	26	Male	4	1	4	2
16	SAMIKSHA PATIL	30	Female	3	1	3	1
17	DIKSHA RAUT	35	Female	4	2	5	3
18	SHARDA KHIRTKAR	37	Female	3	1	4	2
19	SHUBHAM MANDE	30	Male	2	1	3	1
20	RAM DANGE	31	Male	3	1	4	2
21	JAGRUTI CHALURKAR	28	Female	2	1	3	1
22	PRANALI ITANKAR	26	Female	4	1	4	1
23	AISHWARYA PATEL	29	Female	3	1	3	1
24	PRATIK SHELKE	33	MALE	4	2	5	3
25	ANAND NIKHADE	38	Male	3	1	4	2
26	ABHISHEK KUREKAR	31	Male	2	1	3	1
27	SHUDHANSHU KADAM	26	Male	2	1	2	1
28	LALIT BAPAT	29	Male	3	1	4	1
29	EKTA DHANDE	27	Female	4	1	3	1
30	SONALI ATRAM	26	Female	2	1	3	1
31	SHRADDHA MANIK	30	Female	3	1	4	1
32	BHUSHAN MISHRA	34	Male	4	2	5	2
33	KISHAN SHARMA	32	Male	3	1	4	1
34	GAURAV GUPTA	37	Male	4	2	5	2
35	MAYUR SHAH	25	Male	2	1	3	1
36	SHUBHANGI JADHAV	26	Female	2	1	2	1
37	BHARGAVI JAGTAP	29	Female	3	1	4	1

38	ROSHANI BHUTE	27	Female	4	2	4	1
39	PAYAL MESHRAM	31	Female	4	2	5	2
40	MONIKA MANDE	28	Female	2	1	3	1
41	CHAITANYA DHAWANDE	26	Male	3	1	2	1
42	AKASH VIRUTKAR	32	Male	3	1	3	1
43	SHREJAY KAWALKAR	27	Male	4	2	5	2
44	ABHIJIT WANDHARE	33	Male	3	1	4	1
45	KARAN CHITADE	35	Male	4	2	5	2
46	PRAGATI ITANAKR	25	Female	2	1	2	1
47	MRUNMAYI THAKRE	27	Female	3	1	3	1
48	GAUTAMI NAGARKAR	29	Female	3	2	4	1
49	SAKINA SHEIKH	28	Female	2	1	3	1
50	SONALIKA LADKE	31	Female	4	2	5	2
51	ATHRAV AWARI	34	Male	4	2	5	3
52	JUWEL GHOGHARE	33	Male	3	1	4	1
53	VEDANT TAMGADGE	30	MALE	3	1	3	1
54	MINAL DESHPANDE	26	Female	2	1	2	1
55	VANSHITA BORKAR	27	Female	4	1	3	1
56	PRATIKSHA KAKADE	29	Female	4	2	4	1
57	DIPAK NIKHADE	34	Male	4	2	5	2
58	SANKET KATKAIT	32	Male	3	1	4	1
59	POOJA KOTAWAR	25	Female	2	1	2	1
60	PRAJKTA GHUME	28	Female	3	1	3	1