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## Effectiveness of Therapeutic Hand Exercises in Gamer's Thumb

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### ABSTRACT

**Background:** Repetitive movements of the radial first dorsal compartment have been linked to De Quervain Tenosynovitis (DQT). In today's world, smart phones have become embedded. The user's thumb dexterity is significantly responsible for their functionality (s).

**Aim:** The aim of this study was to find the effectiveness of therapeutic exercise in relieving pain and in improving functional ability in gamer's thumb.

**Objective:** i) To evaluate the effectiveness of therapeutic exercise in relieving pain by using NPRS. ii) To evaluate the effectiveness of therapeutic exercises in improving functional ability by using Patient Specific Functional Scale (PSFS)

**Methodology:** Present study is pre and post experimental study involving total 25 participant of age between 18-25yrs male, who has positive finkelstein test. All the participants are given an intervention of therapeutic exercise, assessed as baseline measure with NPRS and PSFS and reassessed after a month.

**Results:** The result showed that there was a significant improvement in pre and post test values.

**Conclusions:** Thus the study concluded that therapeutic hand exercises are effective in relieving pain and in improving functional ability in Gamer's Thumb.

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Keywords: De Quervain; Mobile Phone; NPRS; PSFS.

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### INTRODUCTION

Player unknown battle ground mobile (pubg mobile) is an online multiplayer battle royal game for mobile platform which is developed by tencent besides player unknown battle ground mobile is very popular from several circles from teenagers to adults. Gamers thumb is technically called DEQUERVAIN'S TENOSYNOVITIS but it has nicknames including Nintendo Thumb, Play station Thumb, mother's Thumb and Nintendonitis. For gaming scenarios, the proximal interphalangeal joint of the thumb and index finger attained high flexion-extension angles, which may be attributed to the shape of the game controller. The natural gaming protocol required higher levels of kinematic and muscular efforts which affect the tendon sheaths of the abductor pollicis longus, and the extensor pollicis brevis. Patients with DQT have difficulty gripping objects and performing their daily activities. De Quervain's tendinopathy affects the abductor pollicis longus (APL) and extensor pollicis brevis (EPB) tendons in the first extensor compartment at the styloid process of the radius. It is characterized by pain or tenderness at the radial side of the wrist. De Quervain's tendinopathy is often attributed to overuse or repetitive movements of the wrist or thumb.

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### AIM and OBJECTIVE

**Aim:**

The aim of the study is to evaluate the effectiveness of therapeutic hand exercise in relieving pain and in improving functional activity in gamers thumb.

**Objective:**

i) To evaluate the effectiveness of therapeutic exercise in relieving pain by using NPRS. ii) Using the Patient Specific Functional Scale, assess the effectiveness of therapy exercises in improving functional capacity (PSFS)

**Need for the Study:**

The majority of the article is about patients who got de Quervain's stenosing tenosynovitis after playing video games for a long time. According to a study of video game biomechanics, clutching the causes strain in the abductor pollicis longus (APL) and extensor pollicis brevis (EPB) tendons, and

playing video games necessitates a lot of rapid, repeated thumb and wrist movements, which stresses the APL and EPB tendons. This study was performed to create awareness about therapeutic hand exercises among video game players.

## Methodology

**Materials** – Table, Chair, Pen, NPRS, PSFS, Putty Clay, Dumbbells, Finger Bands, Finger Springs, Hand Ball.

**Study design:** - Present study is pre and post experimental study involving total 25 participant of age between 18-25yrs male, who are playing video games for prolong period time in a day (more than 4 hrs) and are diagnosed as de Quervain's tenosynovitis, with a positive finkelstein test. Finkelstein's test was being performed in four stages. Stage-1, the application of gravity assisted at the wrist by gentle active ulnar deviation. Stage-2, the patient's wrist is deviated in an ulnar direction. Stage-3, the examiner passively deviate the wrist in an ulnar direction. Stage-4, examiner flexes the thumb into palm passively. From all the participants, informed consent was obtained before participating in this study

**Intervention:** An interventional program of therapeutic hand exercises are prescribed to the participant for the duration of 30 mints, 5 days a week for a month. All the participants are assessed as baseline measure with NPRS and PSFS and reassessed after a month. It is also advocated that restricted time to less than 2.30 hours per day and the frequency in mobile gaming to prevent or reduce De Quervain's tendinopathy.

### De Quervain's Tenosynovitis Rehabilitation Exercises

**Opposition stretch:** Rest your hand on a table, palm up. Make a connection between the tip of your thumb and the tip of your little finger. For a total of 6 seconds, stay in this position. Rep 10 times more.

**Wrist stretch:** Bend the opposite wrist down with one hand by squeezing the back of your hand down and holding it there for 15 to 30 seconds. After that, stretch the hand backwards by pressing the fingers backwards and holding for 15 to 30 seconds. During this exercise, keep your elbow straight. Repeat 3 sets on each hand.

**Wrist flexion:** With your palm facing up, hold a dumbbell or hammer handle in your hand. Raise your wrist to the sky. Return to the starting position by slowly lowering the weight. Repeat 3 sets of 10. Gradually increase the weight

**Wrist radial deviation strengthening:** Place your thumb up and your wrist in a sideways posture. Gently bend your wrist up, with your thumb reaching toward the ceiling, while holding a dumbbell or hammer handles. Return to the starting position slowly. Throughout this workout, do not move your for earm. Repeat 3 sets of 10.

**Wrist extension:** With your palm facing down, hold a dumbbell or hammer handle in your hand. Bend your wrist slowly upwards. Reduce the weight to the starting position slowly. Repeat 3 sets of 10. Increase the weight of the object you're holding gradually.

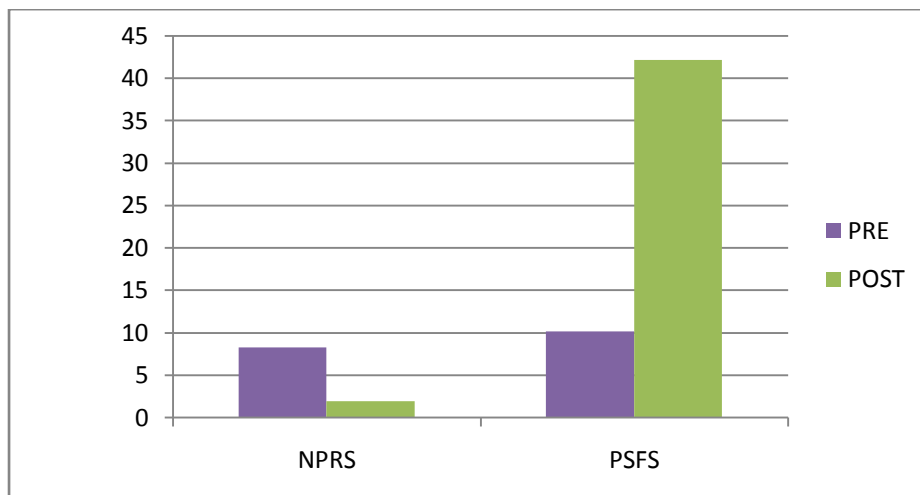
**Grip strengthening:** Squeeze a rubber ball and hold for 5 seconds. Repeat 3 sets of 10.

**Finger spring:** Wrap the outside of your thumb and the rest of your fingers with a large rubber band. To stretch the rubber band, open your fingers. Repeat 3 sets of 10.

## DATA INTERPRETATION

TABLE 1 Represents the Pre and Post Mean Values of NPRS and PSFS

SL.NO	NPRS		PSFS	
	PRE	POST	PRE	POST
25				
<b>TOTAL VALUE</b>	<b>207</b>	<b>30</b>	<b>225</b>	<b>1054</b>
<b>MEAN</b>	<b>8.3</b>	<b>1.2</b>	<b>10.2</b>	<b>42.2</b>
<b>DIFFERENCE</b>	<b>7.1</b>		<b>32</b>	

**Graph 1 Represents the Pre and Post Mean Values of NPRS and PSFS**


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## RESULT

Within group comparison of the pre–post intervention scores of outcome measures such as NPRS, and PSFS was performed. There was a significant improvement in the, NPRS, and PSFS scores, when compared for pre- and post intervention, before and after application of therapeutic hand exercises. Result showed that the hand exercises were effective in reducing pain and in improving functional activity in subjects with De Quervain's Tenosynovitis a gamer's thumb.

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## DISCUSSION

The tendons on the thumb side of the wrist are affected by De Quervain's Tenosynovitis (DQT), which is a painful ailment. It most likely causes pain when the person turns their wrist, grasps something, or makes a fist. [4] People who use their thumb in repetitive pinching, wringing, lifting, grabbing, or extension movements with their wrist are at risk of developing stenosis in the first dorsal compartment. Inadequate blood flow in tiny muscles is the key predisposing factor for the development of DQST. Muscle training would boost vascular supply. The results revealed that all of the outcome measures had a significant difference between pre and post test levels. Muscle strength and endurance are improved through functional activities. The level of those workouts increases week after week as you practice, and this defines the progress in thumb functioning ability. Hand exercises, on the other hand, appear to be more effective for long-term video game players, according to our research.

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## CONCLUSION

De Quervain's Tenosynovitis generally affects the individuals who perform repetitive movements with hands. While playing video games thumb is repetitively used causing stress to the tendon abductor pollicis longus (APL) and extensor pollicis brevis (EPB) . Thus study concluded that, the hand exercises were effective in relieving pain and in improving functional activity in Gamer's Thumb.

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## REFERENCE

- De Quervain's tenosynovitis: a review of the rehabilitative options Ritu Goel and Joshua M. Abzug Published online 2014 May 28.
- De Quervain's Tenosynovitis: A Systematic and Citation Network Analysis Review Yip Joanne, Institute of Textiles and Clothing, The Hong Kong Polytechnic University, Hong Kong Published: January 24, 2020
- A CASE REPORT ON DE QUERVAIN'S TENOSYNOVITIS European Journal of Biomedical and Pharmaceutical Sciences M. Akasha Sindhu, S. Kusuma and Dr. Gummalla Pitchaiah 2019, Volume 6, Issue 13, 350-352.
- Entertainment Software Association (2013). "Essential Facts About The Computer and Video Game Industry: 2013 Sales, Demography And Usage Data".
- A. Lenhart, J. Kahne, . Middaugh, A.R. Macgill, C. Evans, & J.Vitak (2008). "Teens, Video Games, and Civics: Teens". Pew internet & American life project, 76.
- S. Berolo, R.P. Wells, B.C. Ammick III (2011). Musculoskeletal symptoms among mobile and-held device users and their relationship to device use: A preliminary study in a Canadian university population. Applied Ergonomics, 42, 371-378.