

Effects of Theragun on the Trigger Point of Adductor Pollicis among Android Phone Over Users

Syeda Areeba Fatima¹, Farah Shaheen², Saman Babar³, Anam Rehmam⁴, Dawood Irshad⁵, Momin Mukhtar⁶, Muhammad Haris⁷, Mirza Zeeshan Sikandar⁸*

¹House officer, Shalamar Teaching Hospital, Lahore

²HOD Physiotherapy, Chief coordinator Physiotherapy, Shalamar Teaching Hospital, Lahore

³House officer, Shalamar Teaching Hospital, Lahore

⁴Clinical Physiotherapist, Shalamar Teaching Hospital, Lahore

⁵Clinical Physiotherapist, Minhaj Physiotherapy Clinic Lahore

⁶House officer, Shalamar Teaching Hospital, Lahore

⁷Medical Officer, Primary & Secondary Healthcare Department, Narowal

⁸Department of Nephrology, Choudhary Muhammad Akram Teaching & Research Hospital, Lahore

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*Corresponding author: Mirza Zeeshan Sikandar, Department of Nephrology, Choudhary Muhammad Akram Teaching & Research Hospital, Lahore, Pakistan

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ABSTRACT

Background: A trigger point, also known as a hyperirritable point, causes a sharp pain on palpation. People often have a hidden trigger point for adductor pollicis because they overuses their android phones.

Objectives: To find out the comparative effectiveness of the ragun and conventional treatment on adductor pollicis muscle trigger point among mobile phone users.

Materials and methods: This was a quasi-experimental study that was conducted from August 2021 to January 2022. Data from 32 android phone users was collected on the basis of inclusion and exclusion criteria. The data was Sciences. Participants collected from the Shalamar Institute of Health were divided into two groups: group a received conventional treatment of trigger point release and theragun, and group B received conventional treatment. A self-made questionnaire and the Numeric Pain Rating Scale (NPRS) were used to evaluate pain level, while an algometer was used to measure pain pressure threshold. The comparative effectiveness was determined with algometer by measuring pain pressure threshold.

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Results: A total of 62 participants were recruited with the mean age of 22.98 ± 2.32 . The mean \pm SD 28.97 ± 2.3 in pre-treatment while post-treatment 33.75 ± 2.9 . The mean difference is -4.78, with a standard deviation of 2.4. The level of significance is reported as 0.000, which indicates that the results are statistically significant (p < 0.05). **Conclusion:** Theragun on the trigger point of the adductor pollicis muscle in individuals who frequently use Android phones can be potentially beneficial and can ameliorate symptoms.

Keywords: Theragun, Trigger point.

INTRODUCTION

"A trigger point (TrPs) is a hyperirritable point in taunt band of the skeletal muscle. On palpation patient presents referred pain and jump sign". Trigger points are tender to touch and can refer pain to the distant part of the body. Patients may have regional and continuous pain, resulting in reduced range of motion (ROM). Trigger points are present in the specific syndrome known as myofascial pain syndrome which presents approximately 16-18 trigger points in all over the body. There are two types of trigger points Active TrPs and Latent TrPs. ^[1]

There are several causes of trigger point development in muscles including acute trauma, dehydration, poor physical activity and poor nutrition but scientific evidence is lacking. Medical students are more prone to use multitouch smartphone for the study purposes and social media use and for gaming. Majority of population uses android phones for hours, and their screen time is 14 hours to 16 hours per day. Prolonged android phone use causes increased mechanical stress on tendons and muscles of hand. Specifically, adductor pollicis muscle of dominant hand presents with pain and latent TrPs.^[2] Trigger points recognized as pathologic entity in human medicine. Theragun has proved as the fascia releasing tool in the past researches, they hypothesize that Theragun have reduced the muscle fatigue and increases range of motion of muscle. Theragun have potential for early muscle recovery. The patient can use Theragun by himself but it is an electric device so that it can't be handed over to patient to use it by himself. Mostly people like to buy a massage gun that can provide relief. Patient can't use it at home by himself because it is difficult to handle.^[3] Theragun can cause muscle soreness because it increases the local temperature due to repeated movements. The mild inflammation and pain complained by patient after overuse of Theragun.^[4] The effectiveness of conventional treatment like heating pad and soft tissue massage has evaluated. The components of massage therapy is heating pad and massage therapy. The techniques used were effleurage, firm motion involving compression and pressure release and deep muscle/fascia massage to areas that produced concordant symptoms. The sessions lasted 10 min on average.^[5] Soft tissue release (STR) as an advanced massage technique used to assess and stretch the soft tissues of the body. It targets specific areas of tension, usually within an individual muscle, for the purposes of reducing areas of tension within a muscle or to target a specific muscle within a larger muscle group^[6]

Stephanie Guzman et.al (2020) studied for the effects of a single percussive therapy application on active lower body range of motion. ^[7]Shagufta Imtiyaz et al in 2014, studied the effects of vibration therapy and massage in prevention of delayed onset muscle soreness. They concluded that vibration therapy and massage are equally effective in prevention of DOMS. Massage is effective in restoration of concentric strength (1 RM). Yet vibration

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therapy shows clinically early reduction of pain and is effective in decreasing the level of LDH in 48 hours post exercise periods^[8]. In 2019, Urvej Mansuri and Shivani Patel studied for the effects of theragun and ergonomic advice in the patients of low back pain among bus drivers and they concluded that Theragun machine and ergonomic advice to give greater improvement in pain and functional performance in low back pain among bus drivers.^[9]

Physical therapy experts are increasingly using roller massage as a treatment option. While the popularity of roller massage has prompted further study and product development, the trends in roller massage use among physiotherapist practitioners are unknown. ^[10] Studies have supported the massage therapy in treatment of trigger point. In 2011 Romulo-Renan et al , studies for the treatment of planter fascia trigger point , they treated the patients with massage therapy and concluded that there is a significant effectiveness of massage therapy. ^[11] Amber H. Bethers et al. in 2020 studied for the positional release therapy and therapeutic massage to reduce muscle trigger and tender points, they concluded that both treatments were significantly effective. ^[12]

This study aimed to assess the effectiveness of Theragun therapy when used in conjunction with conventional treatment, compared to conventional treatment alone, in treating trigger points in the adductor pollicis muscle of individuals who frequently use Android phones. The study was conducted to determine if Theragun therapy could alleviate trigger point-related symptoms in this specific group by measuring changes in pain pressure threshold and pain intensity after the interventions.

MATERIALS AND METHODS

A quasi-experiment was conducted at Shalamar Institute of Health Sciences in collaboration of Central Park Teaching Hospital Lahore from October 2022 to January 2023 after obtaining ethical letter as per guidelines of Helinsiki declaration. A sample size of 32 participants for each group (total = 62) were calculated with the confidence interval of 95 percent and margin of error for 5 percent^[13]. Purposive sampling technique was employed and medical students with the age range of 22 to 25 years with the trigger point were recruited for the study. While those students who were diabetic, had recent history of trauma and any neurological or musculoskeletal disorder of upper limb were excluded from the study ^[13,14]

Data was collected from Shalamar School of Allied Health Sciences in which a detailed history of each subject was taken to rule out any existing systemic pathology, red flag and any other chronic illness. After these baseline examinations patients were recruited on the base of inclusion and exclusion criteria by purposive sampling. The written consent and the study protocol were provided after the recruitment. No participant was forced to participate in the research. After signing the consent form, basic demographics were documented. Students were divided into two groups Group A and Group B. Subjects were requested to sit in a chair with supported hand and pain pressure threshold was measured by pressing the algometer on trigger point till they feel pain and said to stop. Readings were recorded in pounds (Lbs.). Then massage to group A was provided with theragun on hand with the intensity at Level 1, and group B with a hard massage ball on hand with the maximal intensity that can cause aggravation of pain in

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trigger point. Pain intensity in group B was measured by Numeric pain scale to control the ischemic compression. In group A Theragun was applied by the researcher while in group B participants massage heating pad was applied for 5 minutes and after that massage therapy was done by aggravating pain up to 7 number of Numeric pain scale.

Intervention provided with theragun for 2 minute with an interval of 30 seconds, so that two reading were taken (for pre and post value) in pounds, with the interval of 30 seconds and no follow up. Post reading was taken in same manner as in pre-readings. Readings were documented in table. The whole procedure took only five minutes. The difference between pain pressure threshold PPT before and after intervention determined the effectiveness of tools. Numeric pain rating scale (NPRS) was used to find the level of pain, the scale have markings from 1 to 10. 1 is minimal pain or while 10 is worst pain level.^[15]. Algometer was used to determine the intensity of pain by applying pressure and pressure was noted in pounds.^[16].

STATISTICAL ANALYSIS

Data was entered into SPSS version 26 and was duly compared for errors and omissions. Qualitative variables were computed for percentages and frequencies and were represented in terms of bar charts and graphs. Normality of the data was assessed and pre and post theragun intervention pain rating scores were compared using paired sample t test. A p value less than 0.05 was regarded as significant.

RESULTS

A total of 62 participants were recruited with the mean \pm SD age of 22.98 \pm 2.32. The results of a paired t-test comparing the mean difference between a pre-treatment and post-treatment measurement. The mean difference is - 4.78, with a standard deviation of 2.4. The level of significance is reported as 0.000, which indicates that the results are statistically significant (p < 0.05). The negative value of the mean difference (-4.78) suggests that the post-treatment measurement is lower than the pre-treatment measurement. The small value of the standard deviation (2.4) suggests that the data are relatively consistent. The level of significance (0.000) means that it is highly unlikely that the results are due to chance.

Table 1: Paired Sample Analysis of Pre and Post Theragun Intervention in Medical Students with Trigger Point.

 Paired t-test:

Paired Samples Statistics						
		Mean	Ν	Std. Deviation		
Pair 1	Pretreatment	28.97	32	2.389		
	Posttreatment	33.75	32	2.918		

The mean \pm SD 28.97 \pm 2.3 in pre-treatment while post-treatment 33.75 \pm 2.9.

Paired t- test	Mean \pm SD	Level of significance



Pre & Post Treatment-4.78±2.	0.000
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DISCUSSION

The study aimed to investigate the effects of using a Theragun on the trigger point of the adductor pollicis muscle among individuals who frequently use Android phones. The data includes information on the participants' age, gender, height, weight, and BMI, as well as the pre- and post-treatment measurements of the trigger point and the presence of pain. The data is separated into two groups, Group A and Group B, although it is not specified what the differences between the two groups are.

To analyze the data, a paired t-test could be used to compare the mean difference in pre- and post-treatment measurements of the trigger point between the two groups. The results of the t-test would indicate whether there is a statistically significant difference in the mean change in trigger point measurements between the two groups and whether the use of a Theragun had a significant effect on reducing the trigger point in the adductor pollicis muscle.

The results of the study show that the use of Theragun has a significant effect on reducing the trigger point in adductor pollicis muscle. The results imply that the Theragun may be an effective tool for reducing muscle pain and tension, particularly in individuals who frequently use Android phones and are at risk of developing pain in the adductor pollicis muscle. Theragun therapy has been shown to reduce pain intensity, which is consistent with other research that suggests percussive therapy may be helpful in treating aches and pains in the muscles. It's crucial to remember that the study did not clearly include the best Theragun application parameters, such as frequency, duration, and intensity. Theragun settings could potentially provide a range of findings, hence it is crucial for future studies to investigate these factors in order to develop standardized protocols. The generalizability and the capacity to determine the longevity of the reported effects over time are also constrained by the relatively small sample size and the lack of a follow-up assessment.

Furthermore, the study makes no mention of any discomfort or potential side effects that participants might encounter while receiving the Theragun treatment. It's possible that some participants' muscle aches or minor inflammation affected how much pain they perceived. To give a complete picture of the therapy's safety profile, future study should include a thorough review of potential side effects.

The effectiveness of each intervention separately is questioned when Theragun therapy is compared to standard treatment. Traditional therapies have proven effective in treating muscle trigger points, including massage therapy and heating pads. There was a lack of a thorough description of the features of each participant in each group, such as their unique phone using habits, ergonomic routines, and initial musculoskeletal health, in the study



CONCLUSION

In conclusion, the study provides some initial evidence for the potential benefits of using a Theragun on the trigger point of the adductor pollicis muscle in individuals who frequently use Android phones. However, more research is needed to confirm these findings and to investigate the effects of Theragun on other muscle groups and populations.

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