

DOI: <https://doi.org/10.54702/ms.v22i3.1153>

The effect of stretching exercises associated with shock waves in improving the range of motion of the injured wrist and thumb joint De Quervain syndrome, ages (45-50) years

Basma Khalid Hasan¹✉, Suad Abid Hussein²✉

1&2 Physical Education and Sport Sciences college for women, University of Baghdad

Received: 28/03/2023, Accepted: 11/05/2023, Published: 30/09/2023



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/), [© Modern Sport](https://www.modernsport.com)

Abstract

Rehabilitation is a process of renewing health and the ability to work by various means, where we can obtain the maximum physical - psychological - and social possibility of recovery or survival of the disease in a chronic manner, as well as works to renew the ability to work. The research aims to prepare stretching exercises accompanied by shock waves and to identify the effect of these prepared exercises on women with De Quervain syndrome at the International Medical Center. lead to inflammation of two tendons that move the thumb from the tendon sheath, and the pain increases when holding or rotating the wrist; Therefore, the two researchers decided to use appropriate therapeutic methods that shorten the time and effort to reach a state of recovery, which is one of the important things to reach the best results in treatment, and from here the researchers decided to use stretching exercises with the help of modern technical devices represented by shock waves to reduce inflammation and increase the range of motion for patients with De Quervain syndrome. The two researchers hypothesized that there are statistically significant differences between the pre and post-tests in changing the motor range of women with De Quervain syndrome. The two researchers used the experimental approach due to its suitability for the research, as the injured women were divided into two groups, the two groups performed the pre-tests, then stretching exercises were applied to the experimental group only, then the experimental and control groups were tested in the post-test, and the research community was identified and appointed by the intentional method, and they are the injured in the medical center international women who represent the same research community. After publishing the advertisement for free and several reviews at the International Medical Center, the two researchers fixed the number of patients with De Quervain syndrome and determined the average degree of injury. They were collected and explained to them that they are the research sample and the stretching exercises prepared by the researchers will be applied to them. The two researchers concluded that the exercises used with shock waves had a positive effect on reducing inflammation and increasing the motor ranges of the research sample. and this achieves one of the sustainable development goals of the United Nations in Iraq which is (Good Health). The researchers recommend adopting the rehabilitation approach with shock waves in all treatment centres, with small booklets printed so that they are accessible to all people with de Quervain syndrome.

Keywords

Stretching exercises, De Quervain's syndrome

Introduction

Rehabilitation is a process of restoring health and ability to work through various means. Where we can get the maximum physical _

psychological _ social possibility for recovery or the survival of the disease in a chronic way. When renewing the ability to work, we find that

rehabilitative treatments are the ones that help to restore physical functions and through prevention and rehabilitation for the injured individual and return him as soon as possible for the purpose of participating in his daily life naturally by Treatment based on scientific foundations using exercises and devices that modern technology tends to and the results of special research in developing the capabilities of the injured individual and helping him to overcome the negative effects that the injury creates, including motor and psychological effects. (7) and the individual's acquisition of general health and the ability to produce through rehabilitative exercises that provide the benefit of maintaining a high level of performance because it contributes to the individual's health development with its direct impact on the functional systems and the importance of rehabilitative exercises in rehabilitating the injured person after the injury and his return to practicing his normal life. De Quervain's syndrome is a hand injury as a result of inflammation of two tendons that move the thumb from the tendon sheath. This pain results in the outer part of the wrist. The pain usually increases from gripping or rotating the wrist, and it is difficult to move the thumb smoothly. The shock waves are among the electrical treatments that penetrate the layers of the muscles and work to their depths that cannot be reached through hand pressure and other devices such as ultrasound, whose results do not appear except in mild cases. Through the researchers' visit to physiotherapy centers, it was found that most doctors resort to surgical intervention to treat De Quervain's syndrome, which prompted the researchers to delve into the experience of rehabilitative exercises accompanied by shock waves in reducing inflammation and increasing the range of motion for patients with De Quervain's syndrome. Which came as a result of repetitive work, such as using a mobile phone a lot, electronic games, and golf. Where the symptoms of the injury are difficulty in

movement and the inability to reach the normal range of motion of the wrist and thumb when moving it, and this leads to difficulty in carrying out daily activities normally, especially for women. Here lies the problem of the research because this injury causes a deficiency in the range of motion of the thumb and wrist, which called The two researchers to delve into improving the motor ranges through the exercises prepared by them with the help of shock waves, where the research problem was manifested in the question whether the exercises prepared by the two researchers would help in improving the motor ranges of the wrist and thumb joint with the help of shock waves. The research aimed to prepare rehabilitative exercises and the use of shock waves to improve the range of motion of the wrist and thumb joints for women with De Quervain syndrome. And knowing the effect of rehabilitative exercises and the use of shock waves in improving the range of motion of the wrist and thumb joints for women with De Quervain syndrome. The two researchers hypothesized that there were statistically significant differences between the pre and post choices in the motor range variable for women with De Quervain syndrome. The areas of research were: a sample of (3) women with De Quervain syndrome, for the period from 10/1/2023 to 10/3/2023, on the physical therapy hall at the International Center.

Method and procedures:

“The nature of the problem is what determines the research approach in order to reach the truth and reveal it in order to reach a certain result” (1) The two researchers used the experimental approach to suit the research problem, and the research sample was chosen by the intentional method of women with De Quervain syndrome for ages from (45-50 years old), the number of whom is (3). They were chosen after publishing an advertisement for free at the International Center for Physiotherapy in Baghdad for patients with De Quervain syndrome, and after

examining them by the doctor in the center and diagnosing their pathological condition and the severity of the injury. Gender, age, and severity of injury, so that the work project line is in one line.

Tools used in the research: Arabic and foreign sources, and the Internet. Personal interviews, questionnaire forms, stationery. Kenova program to extract the range of motion.

The research tests: the motor range in the following conditions. The motor range from the bending position, the motor range from the extension position., the motor range from the angle of lateral depression, the motor range from the angle of lateral lifting. All tests were extracted from the Kenova program (2).

Exploratory Experiment: The researcher conducted the exploratory experiment on 15/1/2023 on (2) of the research sample who were not excluded from the main experiment.

Pre-tests:

The two researchers conducted the pre-tests on 16/1/2023 on the research sample at three o'clock in the afternoon in the physical therapy

hall of the International Center for Physiotherapy in Baghdad. The main experiment The two researchers presented the rehabilitation exercises after preparing them to a group of experts to confirm their application to the research sample. With the exercises prepared by the two researchers, taking into account the gradation of effort and rest periods, as well as giving exercises that increase the movement of the joint in terms of dimensions and muscle proximity around the affected joint. It was used for 10 minutes. The duration of the rehabilitation curriculum was (4) weeks, with 3 rehabilitation units.

Post-tests:

Post-tests were conducted on 2/16/2023 at 3:00 pm in the hall of the International Center for Physiotherapy and under the same conditions in which the pre-tests were conducted. The statistical methods were the SPSS statistical bag was used to extract the statistical treatments.

Results:

Table (1)
shows the arithmetic means, standard deviations, and the value of (t)
Calculated error level and significance of the two tests (pre-post)

.Seq	Variables	measuring	Pre		Post		T value	Error presentge	Significance
		Unit	A M	STD	A M	STD			
1	Motor range mode II	degree	38.4	5.19	35.1	5.21	3.119	0.001	Sign
2	Motor range tide mode	degree	39.8	9.01	41.71	9.77	4.310	00.026	Sign
3	The range of motion in the angle of lateral depression	degree	14.9	1.22	17.45	2.89	4.8	0.000	Sign
4	The range of motion in the lateral lift angle	degree	13.5	2.81	10.33	3.53	3.54	0.001	Sign
5	thumb angle	degree	32.2	7.21	39.61	7.49	6.83	0.025	Sign

Upon our observation of Table No. (1), we note that significant differences appeared between the pre and post tests for all tests, which the

Discussion:

researchers attribute to the rehabilitative exercises prepared by the researchers and the shock waves that were used and applied to the research sample, which showed these differences and that the benefits of rehabilitative exercises are "improving blood circulation Strengthening the working ligaments and tendons, improving muscular tone and increasing flexibility" and this is confirmed by Mervat (3). Mufti Hamada pointed out, "The joints always need continuous movement, as well as movement in a wide range, in order to maintain their range of motion in a standard manner" (4). On the wrist and thumb joint of patients with De Quervain syndrome, and restores the normal functioning of the affected joint. This is what was indicated by (Khalil Muhammad and others) "The interest in rehabilitative exercises and their use in a scientific way preserves the human body and restores the normal functioning of the injured and sick joint" (5). The study (Ruaa and Abeer) agrees: "Registered rehabilitative exercises are an essential component of most sports activities. They also contribute to improving the functioning of the nervous and muscular systems, and contribute to improvement between different parts of the body, as well as reducing pain." (10) The two researchers agree with the study (Aya and Abeer) quoting Mona Talib, "The movement has a certain extent that is controlled by the large and small muscles according to the type of movement and is linked to counting and time, which means that each movement has its own rhythm." (9). And that this improvement in the motor ranges of the tests under study helped the patients with De Quervain syndrome to improve the flexibility and elongation of the muscles working on the joint. In addition to that the use of conventional treatments gives an incomplete treatment or recovery rate; Therefore, the two researchers decided to prepare a special rehabilitative curriculum using rehabilitative exercises and collision treatments, and it is natural to determine the difficulty of each rehabilitative

exercise so that it does not cause double pain "for the injured person." The study (Riham and Abeer) agrees, "if the role of movement in the presence of resistance and the number of repetitions has a clear effect on increasing muscle elasticity and tendon capacity." The abduction and approximation in the movement of the joint, as the increase in the angle of extension of the knee joint and the accuracy of the amount of the angle of flexion is an indicator of an increase in the elasticity and flexibility of the muscles, and this is what happened to the wrist joint for women with de Quervain syndrome (8). The two researchers agreed with what Issam mentioned, citing by (Al-Badri and Israa Kazem) "that the lack of strength and flexibility exercises for women with osteoporosis does not only affect the loss of bone mass, but may expose them to the risk of fracture caused by osteoporosis" (12) and this is consistent with what I mentioned (Sinan Hisham) to "The injured need care, in addition to the effectiveness of the use of waves helped to improve the flexibility of the joint and improve the muscle strength and range of motion of the affected joint. (13) The two researchers attribute what (Amer Rashid) mentioned, quoting (Huda Badawi and Riyam) "that the effectiveness of the individual in many activities determines the degree of flexibility of the overall body or the flexibility of a particular joint, and to a person with high flexibility who exerts less effort than the person with less flexibility" (11) The study (Athraa and Souad) confirms that the reduction of pain to the use of the rehabilitative approach leads to an improvement in the work of the muscles, and then reduces the degree of feeling pain during movement. (6)

The two researchers concluded the following:

The impact of the rehabilitation curriculum using rehabilitation exercises associated with shock waves in improving the motor ranges of the following tests:

- The range of motion in the bent position.

- Range of motion in the tide position.
- The range of motion from the angle of lateral depression.
- The range of motion from the lateral lift angle.
- thumb angle.

The two researchers recommend:

By adopting the rehabilitative curriculum that includes rehabilitative exercises associated with shock waves on all treatment centers, with printing small booklets containing exercises designed to be accessible to all people with de Quervain syndrome.

Author's declaration:

Conflicts of interest: None

We confirm that all tables and figures in this article are ours and written by the researchers themselves.

Ethical-Clearance: this manuscript approved by local ethical committee of physical education and sport sciences college for women on (April /2023)

Author's contributions:

All contributions of this study were done by the researchers (B.K. and S.A.) who get the main idea and work on writing and concluding also with number of experts, Mahmoud Younis in Statistics, Abeer Dakhil in revision, Nour Riadh in translating, Suaad Sebti in proofreading

Facilitate the task: this study was supported by International Medical Centre / Dr. Mohameed Sadiq Ibrahim's clinic

References:

1-Wajih Mahjoub. (1988). Scientific Research Techniques and Methods. Mosul Directorate of Dar Al-Kutub for Printing and Publishing, p21.
2-Athraa Hadi. (2019). Rehabilitation curriculum with a wrist auxiliary device to develop muscular strength and improve the range of movement of those with frozen shoulder. published master thesis, Physical Education and Sports Sciences college for Women, University of Baghdad, p55.

3-Mervat Al-Sayed Youssef. (2005). Sports Medicine Problems. Al-Shenhabi Printing Library, Third Floor, Alexandria, p35.

4- Mufti Ibrahim Hammad. (2010). Fitness for Health and Sports. (Cairo, Dar Al-Kutub Al-Haditha,),p34.

5-Khalil Mohamed Hussein et al. (1997). Prevalence of Orthodontic Deviations of Ages (6-11). Second Scientific Conference on Women's Sports, Alexandria University, Egypt,p54.

6- Athraa Hadi & Suaad Abid Hussein. (2020). The effect of qualifying exercises in improving the motor range of the shoulder joint for players injured in athletics effective (discus throwing). Modern Sport, 19(4), 0013.
<https://doi.org/10.54702/msj.2020.19.4.0013>

7- Alaa wissam & Suaad Abid hussain (2022): Effect of constant stretching exercises in improving the elasticity of cervical vertebrae for patients with cervical spondylitis's for ages (40-50) years. Modern Sport, 21(1), 0075.
<https://doi.org/10.54702/msj.2022.21.1.0075>

8-Riham Abdul-Rassoul & Abeer Dakhil. (2021). Effect of rehabilitation exercises in improving the motor range of people with partial rupture of the anterior cruciate ligament of the knee joint by ages (30-35) men. Modern Sport, 20(4), 0032.
<https://doi.org/10.54702/msj.2021.20.4.0032>

9-Aya Nassir & Abeer Dakhil. (2022). The Effect of a Physical Program On Some Physiological Variables to Reduce the Polycystic Ovaries in Women Aged (20-25) Years. Modern Sport, 21(2), 0101.
<https://doi.org/10.54702/msj.2022.21.2.0101>

10- Ruaa Akram Al-Hijazi & Abeer Dakhil. (2021). The effect of rehabilitative exercises associated with the technique of Chiropractic in relieving the pain of muscle stretching in the lower back of people with a herniated disc. Modern Sport, 20(2), 0023.
<https://doi.org/10.54702/msj.2021.20.2.0023>

11- Riam Imad & Huda Badawi. (2020). The effect of rehabilitative exercises accompanied by

aids to improve muscle strength and range of motion for people with dislocated shoulder joint. Modern Sport, 19(3), 0134.

<https://doi.org/10.54702/msj.2020.19.3.0134>

12-Israa Kadhum Al-ghazali & Muna Talib Al-badry. (2021). The relationship of flexibility and grip strength among women with osteoporosis, ages (40-50) years. Modern Sport, 20(2), 0121.

<https://doi.org/10.54702/msj.2021.20.2.0121>

13- Sinan Hisham Al-Modarris. (2017). The effect of the accompanying rehabilitation exercises for ultrasound in the strength and flexibility of ankle joint of patients with a partial tear of the distal ligament of Olympic Champion School players of tennis. Modern Sport. 16(2), 16.

Received from <https://jcopew.uobaghdad.edu.iq/index.php/sport/article/view/53>

Appendixes

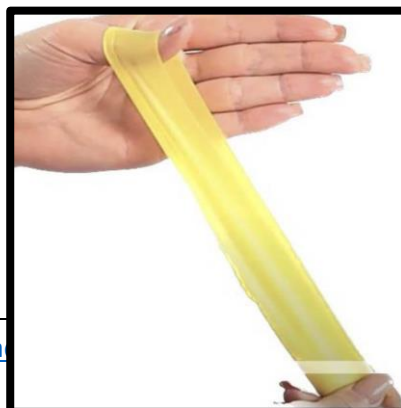
The use of shock waves is given once a week for 10-15 minutes.



Exercise (1) From a sitting position, the position of the arm is upright and the hand is facing upwards. The thumb is removed from the index finger and then pushed towards the index finger by the other hand.



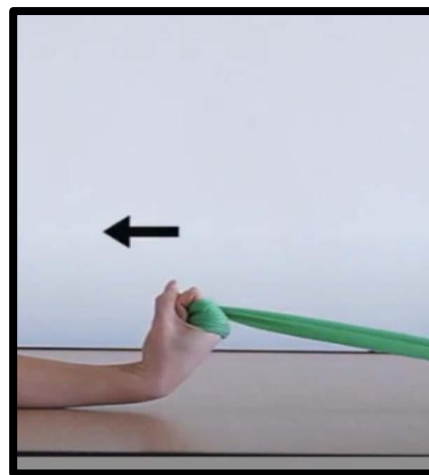
Exercise (2) From a sitting position, put the arm on the table and move the fingers with the four towards the thumb, while dispersing the thumb with the other hand.



Exercise (3) From a sitting position, we take a rubber band (elastic) and put the thumb on one end and hold the other end of the tape with the hand and pull the thumb out.



Exercise (4) from a sitting position and resting the hand on the table, then we tie the rubber band to the table and wrap the rubber band around the fingers from the other end, where the hand is pulled and raised up (30 times).



Exercise (5) From a sitting position with one hand resting on the table, we hold a gelatin ball and place it inside the palm, opening and closing the fingers (30 times)



Exercise (6) From a sitting position, we place a gelatinous ball on the table, and the ball is moved by the forearm 30 times.



Exercise (7) From a sitting position with the arm resting on the table, we carry a weight of 1 kg
The palm is moved up with the help of the other arm 30 times



Exercise (8) from a sitting position with the arm resting on the table
By carrying a weight of 1 kg, the palm is moved up 30 times.



تأثير تمارين الاستطالة المصاحبة للموجات الصادمة في تحسين المدى الحركي لمفصل الرسغ والإبهام المصابات بمتلازمة دي كورفان بإعمار (45-50) سنة

بسمه خالد حسن¹، سعاد عبد حسين²
2&1 جامعة بغداد/ كلية التربية البدنية و علوم الرياضة للبنات

يعد التأهيل هو عملية تجديد الصحة والقابلية على العمل بواسطة مختلف الوسائل حيث يمكن ان نحصل على اقصى امكانية بدنية -نفسية -اجتماعية للشفاء او بقاء المرض بشكل مزمن وكذلك يعمل على تجديد قابلية على العمل .ويهدف البحث إلى إعداد تمارين استطالة مصاحبة للموجات الصادمة والتعرف على تأثير هذه التمارين المعدة على المصابات بمتلازمة دي كورفان في المركز الطبي الدولي حيث تعد إصابات مفصل الرسغ من أكثر الإصابات حدوثاً نتيجة استخدام الأجهزة والأدوات لفترات زمنية طويلة بأوضاع خاطئة حيث تسبب عبء على مفصل الرسغ وبالتالي تؤدي الى التهاب اثنين من الأوتار التي تحرك الإبهام من غمد الوتر ويزداد الألم عند امسك المعصم او تدويره. لذا ارتأت الباحثتان استخدام الوسائل العلاجية المناسبة والتي تختصر الوقت والجهد للوصول إلى حالة الشفاء وهي من الأمور المهمة للوصول إلى أفضل النتائج في العلاج ومن هنا ارتأت الباحثتان استخدام تمارين الاستطالة بمساعدة الأجهزة التقنية العصرية المتمثلة بالموجات الصادمة لتقليل الالتهاب وزيادة المدى الحركي المصابات بمتلازمة دي كورفان. وافترضت الباحثتان هناك فروق ذات دلالة إحصائية بين الاختبارين القبلي والبعدي في تغير المدى الحركي المصابات بمتلازمة دي كورفان. و استخدمت الباحثتان المنهج التجريبي لنظراً لملائمته للبحث حيث تم تقسيم المصابات الى مجموعتين تؤدي المجموعتين الاختبارات القبليّة ثم تم تطبيق تمارين الاستطالة على المجموعة التجريبية فقط بعدها تم اختبار المجموعتين التجريبية والضابطة في الاختبار البعدي وتم تحديد مجتمع البحث وعينته بالطريقة العمدية وهم المصابات في المركز الطبي الدولي وهم يمثلون مجتمع البحث نفسه. وبعد نشر الاعلان بالمجان وعده مراجعات في المركز الطبي الدولي قامت الباحثتان بتثبيت عدد المراجعات المصابات بمتلازمة دي كورفان وتحديد الدرجة المتوسطة من الاصابه تم جمعهم والتوضيح لهم بأنهم عينة البحث وستطبق عليهم تمارين الاستطالة المعدة من قبل الباحثتان واستنتجت الباحثتان أن التمارين المستخدمة مع الموجات الصادمة أثرت تأثير ايجابي في تقليل الالتهاب وزيادة المديات الحركية لعينة البحث وتوصي الباحثتان باعتماد المنهج التأهيلي مع الموجات الصادمة على جميع المراكز العلاجية مع طبع كتيبات صغيرة بحيث تكون في متناول جميع المصابين بمتلازمة دي كورفان

مستخلص البحث

تمارين الاستطالة ، متلازمة دي كورفان

الكلمات المفتاحية