

The Effect of Using Adhesive Tapes (Kenzo Tape) in Rehabilitating the Shoulder Muscles of Throwing Players in Paralympic Athletics Events

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Abstract

The purpose of this paper is to identifying the effect of using adhesive tapes (kenzo tape) in rehabilitating the injured shoulder muscles of athletes with physically handicapped, identify the effect of the rehabilitation method and the tapes (kenzo tape) on improving measurements of (muscle force, degree of pain, muscle flexibility), and identify the differences between the pre and post-tests for the physically handicapped. The researchers used the experimental approach in one group design to fit the nature of the research with pre, between and post-test, where the research sample community consisted of (8) players of the national sports team with handicapped in the throwing event, who represent the research community, and (3) people who did not apply to them were excluded. Specifically, in the research, where (5) players who had an injury to the shoulder muscles were identified as shown in the table, and who were chosen in a deliberate manner by means of clinical examination and medical diagnosis for each player, as the percentage of the research sample reached (%), which is the percentage of the sample's representation from the community search. One of the most important results reached by the researcher is that: The effect of using adhesive tapes (kenzo tape) in rehabilitating the injured shoulder muscles of physically-handicapped athletes by reducing pain, the effect of the rehabilitation method and the (kenzo tape) on improving the measures of (muscle strength, degree of pain, and muscle flexibility), and there were differences between the pre and post-tests for the physically handicapped by reducing pain and increasing physically range. One of the most important recommendations recommended by the researchers is that: Use of rehabilitative exercises and adhesive tapes for the injured in the shoulder and those who have weakness in the shoulder muscles and blinding in the training centers for the physically handicapped and the rehabilitation centers, and use of adhesive tapes (kenzo tape) for all players, whether physically handicapped or normal, during training or between training units, because of its strength, increased movement and protection from injury.

Keywords: injury, rehabilitation, adhesive tapes, handicapped, throwing.

Introduction:

Rehabilitation at the present time is one of the important things in human life, and it is no less important than the other aspects that concern human health, that any injuries are limited and lack of recovery early from the injury will cause complications that are not limited to athletes only, but to people in general, and the injury occurs in exercise or during competition or while practicing a recreational activity for the sake of health, and the incidence of these injuries and their types differ according to the type of sports activity practiced, and no field of sports activity is devoid of the possibility and even the inevitability of injuries of different types and severity, which hinders The development of the level of the athlete, because the injury constitutes a

physical and psychological barrier that hinders the way to reach the high levels, as every sport has to some extent a degree of risk, and the difference in the form of injury in terms of quantity and quality is depending on the form of the practiced activity and the type of this, and for this lies the importance of research in the field of rehabilitation The athlete and working on the use of adhesive tapes (kenzo tape) with therapeutic exercises for the purpose of finding more effective means to return the arms to what they were before the injury occurred.

Research problem:

Through research and familiarity with the work of sports rehabilitation medicine centers, the researcher is one of the workers in those centers as a physiotherapist, as well as in the rehabilitation of

sports injuries, as we have repeatedly injured the shoulder muscles, and the reason is due to the nature of the activity that depends on the performance of a muscle group in which the participant is anatomically detailed. The shoulder around which the quality of performance revolves, as well as the imbalance between the shoulder muscle groups between the two ends of the upper body, and the high effort exerted by the player and the accompanying components of the training load, it constitutes a great burden on the shoulder muscles, so the researcher decided to counter special exercises and adhesive tapes (kenzo tape) helps to treat injuries of the shoulder muscles of the physically handicapped in throwing activities.

Research objective:

- Identify the effect of using adhesive tapes (kenzo tape) in rehabilitating the injured shoulder muscles of athletes with physically handicapped.
- Identify the effect of the rehabilitation method and the tapes (kenzo tape) on improving measurements of (muscle force, degree of pain, muscle flexibility).
- Identify the differences between the pre and post-tests for the physically handicapped.

Research hypotheses:

- There are statistically significant differences between the uses of adhesive tapes (kenzo tape) in the rehabilitation of the shoulder muscles for the physically handicapped.
- The rehabilitation curriculum and adhesive tapes have statistically significant differences in the rehabilitation of the shoulder muscles for the movement handicapped.
- There are statistically significant differences in the pre and post-tests for the physically handicapped.

Research fields:

- Human field: The players of the national team, the category of applicants in the shooting activities, who have a physically handicapped
- Time field: (1/12/2022) to (1/2/2023)
- Spatial field: In the halls of Al-Shaab International Stadium, as well as the physiotherapy halls in the Ministry of Youth and Sports, the Great Alrassul Complex in Adhamiya, and the halls of physical education and sports sciences.

Research methodology and field procedures:

Research Methodology:

The researchers used the experimental approach in one group design to fit the nature of the research with pre, between and post-test.

Community and sample research:

The research sample community consisted of (8) players of the national sports team with handicapped in the throwing event, who represent the research community, and (3) people who did not apply to them were excluded. Specifically, in the research, where (5) players who had an injury to the shoulder muscles were identified as shown in the table, and who were chosen in a deliberate manner by means of clinical examination and medical diagnosis for each player, as the percentage of the research sample reached (%), which is the percentage of the sample's representation from the community search, and because the process of selecting the research sample is one of the most important things in scientific research, as the original community must represent a real representation in order to give more accurate and real results on that and enrich the research with honest practical information, meaning that the goal of selecting the research sample is to obtain accurate information about the research, to complete the research, the researchers used the means and tools (special exercises, adhesive tapes (kenzo tape), geometric stretching device, towels, sterilizers, ice, handles, rings, and a stopwatch. The two researchers conducted the exploratory experiment on (players) from among the research sample to the Specialized Center for Treatment and Rehabilitation of Sports Injuries on (1/11/2022) to identify what the main steps of the experiment require and the appropriateness of the exercises and training volumes for the rehabilitation of the shoulder muscles, and the intensity of the exercises was determined by Pain, as the researchers relied on tests of the physically range of the shoulder muscles in a movement in the shoulder angle measurement test in movements: Shoulder flexion, Shoulder extension, Shoulder abduction). The two researchers conducted the pre-test at (2.00) noon corresponding to (11/20/2022), and the researcher prepared special exercises for the rehabilitation of the injured shoulder muscles through scientific sources and medical approaches and put them in a questionnaire and then presented them to the experts to start the opinion about the exercises before starting the main experiment, and then the researchers applied the method prepared to get rid of the shoulder injury continuously in the training place located in the Al-Shaab Varicose Stadium, on (1/12/2022) and the data was divided and collected (28/2/2023).

Statistical methods: The search data was processed through the Statistical Package for the Social Sciences (SPSS) (Abdul Zahraa, and Farhan 2022), (Aqeel and Shaqhati 2019).

- Arithmetic mean
- standard deviation,
- Skewness
- Mauchly Sphericity test.

- Bonferroni

Results and discussion:

Presenting the results of the pre, structural and post-tests of the research sample in the test (measurement of the shoulder angle in movements: Shoulder flexion, Shoulder extension, Shoulder abduction) until the feeling of pain is average and discussed.

Table (1) shows the arithmetic mean, standard deviation, and (F) value calculated for the Shoulder Flexion test

Variable	Arithmetic mean	Standard deviation	Mean squares between tests	Variable error	(F) value calculated	Level sig	Type sig
Pre-test	126.800	1.923	3199.267	7.767	411.923	0.000	sig
between –test	155.800	3.271					
Post-test	177.200	2.588					

Sig > (0.05) at a degree of freedom (8.2) and below a level of significance (0.05)

Table (2) shows Mauchly Sphericity test

Influence within the tests	Mauchly coefficient	degree of freedom	Level sig
Shoulder Flexion	0.771	2	0.814

Significant < (0.05)

In order to find out the differences between the tests, the Bonferroni test was used.

Table (3) shows the difference between the mean and the significant difference between the Bonferroni test and the shoulder flexion test

Tests	Mean differences	Sd	Level sig
Pre-test – between -test	29.000	1.378	0.000
between -test - Post-test	21.400	2.117	0.002
Pre-test - Post-test	50.400	1.720	0.000

Table (4) shows the arithmetic mean, standard deviation, and F value calculated for the Shoulder Extension test

Variable	Arithmetic mean	Standard deviation	Mean squares between tests	Variable error	(F) value calculated	Level sig	Type sig
Pre-test	34.800	3.701	1256.533	4.600	136.580	0.000	sig
between –test	45.200	1.303					
Post-test	57.200	1.923					

Sig > (0.05) at a degree of freedom (8.2) and below a level of significance (0.05)

Table (5) shows Mauchly Sphericity test

Influence within the tests	Mauchly coefficient	degree of freedom	Level sig
Shoulder Extension	0.592	2	0.455

Significant < (0.05)

In order to find out the differences between the tests, the Bonferroni test was used.

Table (6) shows the difference between the mean and the significant difference between the Bonferroni test and the Shoulder Extension test

Tests	Mean differences	Sd	Level sig
Pre-test – between -test	10.400	1.470	0.006
between -test - Post-test	12.000	0.837	0.000
Pre-test - Post-test	22.400	1.631	0.000

Table (7) shows the arithmetic mean, standard deviation, and F value calculated for the Shoulder Abduction test

Variable	Arithmetic mean	Standard deviation	Mean squares between tests	Variable error	(F) value calculated	Level sig	Type sig
Pre-test	137.000	1.581	4516.133	1.817	1242.972	0.000	sig
Between – test	167.200	1.923					
Post-test	178.000	1.581					

Sig > (0.05) at a degree of freedom (8.2) and below a level of significance (0.05)

Table (8) shows Mauchly Sphericity test

Influence within the tests	Mauchly coefficient	degree of freedom	Level sig
Shoulder Abduction	0.852	2	0.787

Significant < (0.05)

In order to find out the differences between the tests, the Bonferroni test was used.

Table (9) shows the difference between the mean and the significant difference between the Bonferroni test and the Shoulder Abduction test

Tests	Mean differences	Sd	Level sig
Pre-test – between -test	30.200	0.735	0.000
between -test - Post-test	10.800	0.800	0.001
Pre-test - Post-test	41.000	1.000	0.000

Discussing the results The results of the pre, structural and post-tests of the research sample in the shoulder angle measurement test in the movement (Shoulder flexion, Shoulder extension, Shoulder abduction) until pain is felt at the rate and discussed

After the researcher obtained the observations and treated them statistically, then presented them in this section with a set of tables because they reduce the possibilities of error in these stages of the research and enhance scientific evidence and add strength (Chelmer, 1974.) , in addition to that, the researcher will look at it and discuss it statistically, so the researcher will put that through the tables (1) (4) (7) There appeared statistically significant differences between the pre, evidence and post-tests of the sample group in the variable flexibility and prolongation of movements and muscle strength, which indicates and notes that there The effect is positive in the arithmetic mean of the post-tests, as test (1) represents (177,200), while table (4) represents (57,200), while table (7) represents (178.00). The effect of the mixed rehabilitation curriculum, where the diversity had an impact on the development of flexibility from the exercises that helped in increasing the flexibility and range of motion for each movement in the joint is important in increasing the range of motion of the joint, as well as it increases the compatibility between the muscular and nervous work of the muscle groups working on it, which gives them strength and flexibility The appropriate movement while performing the correct movement of the muscles and avoiding injury at the same time, and this is what was agreed upon (Hamza and Ali, 2022) . The exercises used rehabilitative exercises using the therapeutic bag, a direct relationship to the range of motion of the joint, the property of the muscles and ligaments, and the kinetic elasticity. It helps the muscles to relieve spasms, which were the cause of a lack of movement and use, and the exercises contain different types of range-of-motion development exercises such as negative, positive, static, and slowly moving flexibility exercises with the widest range of motion helped to obtain these results. As obtaining a sufficient amount of flexibility for the muscles, tendons, and ligaments of a particular joint or group of joints in a particular movement or activity depends on the amount and intensity of the exercises that are performed in a wide range of motion, as well as on the degree of flexibility acquired previously for the individual it was also confirmed by (Saleh and Ali, 2021). The application of stretching exercises in a way (contraction - relaxation) plays a role in improving functional indicators such as: (lower pain scores - lowered pulse rate, in addition to that, and stretching exercises to reduce blood pressure confirms that stretching and stretching exercises have more effectiveness compared to the effectiveness of walking Rapid reduction of blood pressure in people with high blood pressure as well Confirmed by

(Hamza and Ali, 2022) The use of flexibility in rehabilitation helps the muscles to reduce the intensity of spasms, which was the cause of a lack of movement and use, and the exercises contain different types of exercises to develop the range of motion, such as negative, positive, static, and slowly moving flexibility exercises with the widest range of motion helped to obtain these results. As obtaining a sufficient degree of flexibility for the muscles, tendons, and ligaments of a particular joint or group of joints in a particular movement or activity depends on the amount and intensity of the exercises that are performed in a wide range of movement, as well as on the degree of flexibility acquired previously by the individual. It was also confirmed by (Al-Tikriti, Yassin, Al-Hajjar, and Taha, 1986). The role of strength exercises using multi-tensioned rubber bands, which worked to raise the level of muscle strength of the rhomboid muscle, as the increase in muscle strength led to the pulling of tendons and ligaments, which led to strengthening the working muscles as a result of the development of the special strength of this muscle and reducing the level of the degree of pressure that causes pain, and this is what Reflect on the rotation of the neck to the right and pass the occurrence of pain. Because therapeutic exercises increase the flexibility and activity of the body and increase neuromuscular compatibility (Awad Allah and Hamad Al-Sabahi, 1973) , therapeutic exercises are specific movements for different pathological conditions, with a therapeutic and preventive purpose, to return the body to a normal state this was confirmed by (Khalil, 1990). Also, the exercises led to an improvement in the kinetic field of the joint, which leads to an increase in the flexibility of the joint as a result of practicing the exercises and applying the curriculum correctly. In the absence of training, the cartilaginous tissues lose their elasticity and become rigid and contracted (Hanna. 2005). Thus, the development that took place came as a result of the effectiveness of the vocabulary of rehabilitative exercises that were prepared according to the correct scientific foundations and based on the efficiency of the exercises used in rehabilitating the injured muscles, through therapeutic exercises to strengthen the injured muscle and the surrounding muscle group. This result agrees with what he indicated (Nayef. 1986). That exercise is necessary for the individual in order to live a happy and healthy life free from diseases and handicapped, he also said (Abd al-Wadud., & Shaghati 2022) organized physical training according to an organized program that includes strength and flexibility of the arms helps a lot in developing various physical abilities this was

confirmed by (Al-Hassan, 2015). The use of assistive devices and tools in developing the level of physical abilities contributes greatly to increasing the players' abilities to speed and development (Hamill & Knutzen, 2009) also pointed out increasing the strength, range of motion, and elasticity of the muscles surrounding the joint, as well as improving muscular work, from here, the application of rubber ropes and tapes had a positive effect in improving the range of motion and increasing the shoulder joint, and the researcher used the research sample as the most lengthening type in each activity is the contraction and relaxation during the training units This is to increase the range of motion for each muscle of the shoulder this is what he mentioned (Youssef Lazeem Kameesh 2002), it was also confirmed by (Mohammed, D., & Jalal, K. 2020) the use of rubber ropes, which had positive impacts on the development of strength with both arms, as well as its effect on the working muscles well. This was confirmed by (Bastawisi. 1984) the use of rubber ropes with special exercises helps to develop the muscles on which the ropes work and affects the work of the muscles from the inside and outside and helps to achieve goals as well as the use of adhesive tapes (kenzo tape) that had a distinct role in stimulating blood circulation as well as the stability of the shoulder joint at Use a range of motion continuously and in high repetitions and reduce the degree of pain that was a hindrance to the athlete during competitions and training units. This was confirmed by the researcher (Heather, 2000) which talks about that the use of adhesive tapes (kenzo tape) was effective in improving muscular work, as it gives stability to the joint and support for the injured muscles when performing sports movements, as the importance of using such tools helps the athlete to recover and restore his activity in a specific time Thus, it was confirmed (Susan & Dominiek, 2014). The importance of increasing the range of motion of the joint helps a lot in the neuromuscular compatibility of the muscle group on which the effort falls during the competitions this is what was agreed upon (Hussein, and Shaghati.2010).The stretching exercises are built on the theory that the muscles can perform a wider range in the event of their fatigue through the systolic change of each of the working muscles and the corresponding muscles that perform that purpose. (kenzo tape) as well as the curriculum prepared by the supervisor and the researcher upon rehabilitation, the effect cannot be muscular work without joint ligaments or controlling them and coordination during muscular work and the emergence of natural

movements and ranges as best as possible within a period of (8) weeks.

Conclusions and Recommendations:

Conclusions:

- The effect of using adhesive tapes (kenzo tape) in rehabilitating the injured shoulder muscles of physically handicapped athletes by reducing pain.
- The effect of the rehabilitation method and the (kenzo tape) on improving the measures of (muscle strength, degree of pain, and muscle flexibility).
- There were differences between the pre and post-tests for the physically handicapped by reducing pain and increasing physically range.

Recommendations:

- Use of rehabilitative exercises and adhesive tapes for the injured in the shoulder and those who have weakness in the shoulder muscles and blinding in the training centers for the physically handicapped and the rehabilitation centers.
- Use of adhesive tapes (kenzo tape) for all players, whether physically handicapped or normal, during training or between training units, because of its strength, increased movement and protection from injury.

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