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The effect of using acupuncture in reducing elbow pain among badminton players

أثر استخدام الوخز بالإبر في تخفيف ألم المرفق لدى لاعبي تنس الريشة

Effet de l'utilisation de l'acupuncture sur la diminution de la douleur chez les joueurs de badminton

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ملخص:

هدفت هذه الدراسة إلى معرفة تأثير استخدام العلاج بالوخز بالإبر في تقليل شدة آلام المرفق لدى لاعبي كرة الريشة. حيث تم استخدام الطريقة التجريبية على عينة مقصودة قوامها (06) ستة لاعبين من فريق كرة الريشة بنادي الفوارة فئة كبار يعانون من آلام متفاوتة في المرفق، وخضعوا لاختبارات مسبقة وبعدية، ممثلة في اختبار MSD لقياس نسبة الألم، واختبار رمي كرات الدواء من الجلوس لقياس القوة، إنفجار الذراع، الفاصل الزمني بين القياس القبلي واللاحق كان (10) عشرة أسابيع مع استخدام العلاج خلال هذه الفترة. نستنتج أن الوخز بالإبر الصينية له تأثير إيجابي في تخفيف آلام العضلات والعظام عند الرياضيين، ونوصي باستخدامه من قبل الفرق الرياضية.

الكلمات المفتاحية: الوخز بالابر؛ ألم المرفق؛ القوى الانفجارية.

Abstract:

This study aimed to find out the effect of using acupuncture treatment in reducing the severity of elbow pain in badminton players. Where the experimental method was used on an intended sample of (06) six players of the badminton team of Al-Fouara Club- senior class, who suffer from varying pain in the elbow, and they were subjected to pre- and post-tests, represented in the MSD test to measure the percentage of pain, and the test of throwing medicine balls from sitting to measure strength. The explosiveness of the arm, the time interval between pre and post measurement was (10) ten weeks with the use of treatment during this period. We conclude that Chinese acupuncture has a positive effect in relieving musculoskeletal pain in athletes, and we recommend its use by sports teams.

Keywords: Acupuncture; Elbow pain; Explosive strength.

Résumé :

Cette étude visait à déterminer l'effet de l'utilisation d'un traitement d'acupuncture sur la réduction de la gravité de la douleur au coude chez les joueurs de badminton. Lorsque la méthode expérimentale a été utilisée sur un échantillon prévu de (06) six joueurs de l'équipe de badminton du Club Al-Fouara - classe senior, qui souffrent de douleurs variables au coude, et qu'ils ont été soumis à des pré- et post-tests, représenté dans le test MSD pour mesurer le pourcentage de douleur, et le test de lancer des médecine-balls depuis la position assise pour mesurer la force. L'explosivité du bras, l'intervalle de temps entre la mesure pré et post était de (10) dix semaines avec l'utilisation du traitement pendant

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cette période. Nous concluons que l'acupuncture chinoise a un effet positif sur le soulagement des douleurs musculo-squelettiques chez les athlètes, et nous recommandons son utilisation par les équipes sportives.
Mots clés : Acupuncture ; Douleur du coude ; Force explosive.

1. Introduction :

Acupuncture is a type of alternative medicine and one of the methods in traditional Chinese treatment (Berman et al., 2010, 363). The oldest available text on acupuncture is (The Code of Internal Diseases of the Yellow Emperor), which indicates that acupuncture originated in China. (John & al., 1997, 15). Some studies suggest that the analgesic effect of acupuncture is related to the release of natural endorphins in the brain. This can be deduced by blocking the action of endorphins (or morphine) using a drug called naloxone. When a patient takes naloxone, it blocks the analgesic effect of morphine, causing the patient to feel pain again. When naloxone is given to a patient receiving acupuncture, it can also block the analgesic effect of the needles, which increases the patient's pain (Pomeranz & Chiu, 1976, 75). There are a variety of theories related to acupuncture, depending on the different philosophies that look at this topic, as well as different acupuncture techniques in different countries. It is used to relieve pain by inserting needles into certain areas of the body. Chinese philosophy says that acupuncture affects an individual's life force and energy channels circulating in the body. The pharmacologist inserts the needle into the areas of channels and painful places in the body. (Ernst, Lee & Choi, 2011, 152) According to the theory of traditional Chinese medicine, the acupuncture sites are located on the meridians of energy, qi, vital energy, and flow. However, there is no basis in anatomy or histology for acupuncture sites or energy lines. The effectiveness of acupuncture remains controversial and the results indicate that the evidence is greater for 13 of the 26 conditions included in this comparison. There are 7 indicators that it has become more positive and 6 indicators that it has changed in the opposite direction. The research concluded that acupuncture research is active. Clear evidence implies that acupuncture is an effective treatment for some, but not all, conditions (Ernst & al., 2007, 24). Recent literature also refers to acupuncture sites as useful suggestions in clinical practice (Xinnong, 2005, 53).

More recently, acupuncture has been shown to increase nitric oxide in the areas being treated, resulting in increased local circulation (Blom & al., 1993). Especially for the elbow, in Latin (cubitus), is the visible joint between the upper and lower parts of the arm. The joint includes several important structures such as the olecranon of the ulnar bony protrusion in the elbow, the antecubital fossa, the medial and lateral epicondyles, and the elbow joint. A study of monkeys by recording neural activity directly in the thalamus of the brain indicated that the analgesic effect of acupuncture lasted more than an hour. In addition, there is significant overlap between the nervous system and acupuncture at acupuncture (very tender points) in fascioliasis (Melzack, Stillwell & Fox, 1977). In a 2004 study of 570 arthritis patients, the average pain experienced by people receiving acupuncture according to the Womack scale decreased by 40% after 14 weeks; For sham acupuncturists, it was only 30 percent, and for those receiving guidance only about their condition, it was 22 percent. For fibromyalgia, a systematic review of the 5 best available randomized controlled trials showed mixed results (Mayhew & Ernst, 2007, 801). This is what made us address in our study the effect of treatment and acupuncture for the treatment of pain related to the elbow, depending on several characteristics and inferred indicators in measuring the pain ratio, such as the MSD test and the explosive strength test of the arm. In order to facilitate the research process, it was divided into two partial questions:

- What is the effect of using Chinese acupuncture in improving the MSD index?

2. Methods and materials:

We did a prospective study on a sample of (03) three athletes from the same team who were deliberately chosen and then excluded from the basic course, where the experimental protocol was applied to them, which is the MSD test to infer the size of pain and the medicine ball throwing test category (3) three kilograms of sitting On a chair to stabilize the torso and to measure the explosive force of the arm only, the second test was applied after a period of time of (30 minutes) half an hour, then it was re-conducted after a period of time of (24 hours) a full day of complete rest, then the validity and stability of each of the two tests and the measured properties were measured.

Table (1): Pearson test for validity and reliability

	MSD	Explosive force
Validity	1	1
Reliability	1	1

Through Table (1), we note that all stability values are equal to (1) one, and this is evidence of the stability of the tests and the measured features, and the validity is the square root of the stability.

The main study was on a sample consisting of (07) seven players of the Fouara badminton team of the state of Setif (less than 21 years old), regular training males, who were chosen in an intentional way, and the tests used in the field study were applied to them from the MSD test, which is inferred to measure pain and the ball pushing test. Medical (3) Three kilograms of stability on a chair to stabilize the movement of the torso and measure the explosive force of the arm in meters and centimeters.

3. Results and discussion:

1/ Pain index:

Table (2): Shapiro-Wilk test to find out the extent to which the values follow a normal distribution between the pre and post measurement with regard to the pain test.

chapiro-wilk test							
Obs	**Pre test**		**Post test**		**df**	**α**	
	Sig Sw	**calc**	**Sig Sw**	**calc**			
Normal	0.183	0.869	0.62	0.818	7	0.05	MSD

From the Shapiro-Wilk test for the mean distribution of values in moderation, we find that the two values (sig) are completely greater than the level of significance 0.05 (Sig Sw>0.05) and at the degree of freedom Df=7 it turns out that the data are distributed moderately, which makes the most appropriate test for this study is the Student T test Two eyes connected (before and after)

Table (3): shows the differences between the pre and post measurement of the pain index.

Student's T test for two related samples (pre-measurement, post-measurement)							
Obs	$\overline{X}_1$-$\overline{X}_2$	**Sig**	**tab T**	**calc T**	**df**	**α**	
No sign	3.857	0	1.943	14.789	6	0.05	**MSD**

From the table it is clear that at the level of significance α=0.05 and at the degree of freedom df=6, it is clear that the calculated value of T is greater than the value of the tabular T (14.789 > 1.94), and that the probability value (sigSw) is completely smaller than the level of significance α=0.05 (0 < 0.05). On the rejection of the zero hypothesis H0, which states that there are no statistically significant differences between the pre and post measurement, and the acceptance of the alternative hypothesis H1 in the presence of statistically significant differences between the pre and post measurements, and by comparing the result of subtracting the arithmetic means $\overline{X}1$-$\overline{X}2$ = 3.857, we conclude that the results of the pre-measurement greater than the dimensional measurement.

2/ explosive force index:

Table (4): Shapiro-Wilk test to find out the extent to which the values follow the normal distribution between the pre and post measurements with regard to the explosive force test of the arm.

chapiro-wilk test							
Obs	**Post test**		**Pre test**		**df**	**α**	
	Sig Sw	**calc**	**Sig Sw**	**calc**			
Normal	0.730	0.950	0.312	0.897	7	0.05	Force explosive

The Shapiro-Wilk table shows us that the data are moderately distributed in the pre-measurement (Sig SW>0.05), i.e. 0.312<0.05, and in the post-measurement 0.730>0.05 at the degree of freedom Df =7, and that the most appropriate test is the Student's T test.

Table (5) shows the differences between the pre and post measurement of the explosive force index of the arm.

Student's T test for two related samples (pre-measurement, post-measurement)							
Obs	$\overline{X}_1$-$\overline{X}_2$	**sig**	**tab T**	**calc T**	**df**	**α**	
No sign	-0.414	0.01	1.943	-3.693	6	0.05	Force explosive

From the table it is clear that at the level of significance α=0.05 and at the degree of freedom df=6, it is clear that the absolute value of the calculated T is greater than the value of the tabular T (3.693 > 1.94), and that the probability value (sigSw) is completely smaller than the level of significance α=0.05 (0.01<0.05) on the rejection of the zero hypothesis H0, which states that there are no statistically significant differences between the pre and post measurements, and the acceptance of the alternative hypothesis H1 with the presence of statistically significant differences between the pre and post measurements, and from the comparison of the result of subtracting the arithmetic means $\overline{X}1$-$\overline{X}2$ = -0.414 we conclude that The results of the pre-measurement are smaller than the post-measurement.

Table (6): shows the effect size of the pre and post measurement.

Cohen's D test				
Impact	**D**	[T]	**n**	
strong	1.39	3.693	7	**MSD**
	5.29	14.789		Force explosive

Through the table, we can see that the values of D are completely greater than (0.8), which indicates that the effect played by acupuncture is strong between the pre and post measurement.

Chinese acupuncture helps reduce, if not reduce, pain based on the MSD index, which is inferred to measure the size of the pain, as it was mentioned in a controlled study conducted on (300) migraine patients in 2005, it was reported that acupuncture in places of acupuncture and in places other than acupuncture led to an improvement compared to patients still on the waiting list, and there are no significant differences between the two groups (Linde & al., 2005, 293), and another study by Howick & al. (2016) conducted on (270) patients with arm pain, in 2006, showed that sham acupuncture had a stronger effect on pain than the effect of pills, and the study concluded that placebo effect appears to be more flexible and depends on how it is used in medical methods. In a study by Moffet (2009), he concluded that the acupuncture effect is more than just a placebo effect, but the placebo effect of acupuncture is not just a placebo effect. Thus, the traditional theories that identify specific points and stimulation techniques to distinguish the actual from the placebo are unreliable and do not produce results (Howard, 2009). This systematic review included (35) randomized trials covering (2861) patients. There is not enough evidence to recommend acupuncture or dry needling for acute low back pain. For chronic low back pain, results show that acupuncture is more effective for pain relief than no treatment or placebo, in measurements up to three months. The results also show that acupuncture is more effective for improving chronic low back pain, in the short term. Acupuncture is no more effective than conventional and "alternative" therapies. When acupuncture is added to conventional therapies, it relieves pain and improves function better than using conventional therapies alone. However, its effectiveness is still small, dry needling appears to be helpful in helping other therapies to relieve chronic low back pain (Furlan & al., 2005). From the results of the argument (03), it is clear to us the significance of the post-test and that the calculated value of T is much greater than the tabular T-value in favor of the post-measurement, by comparing the result of the difference between the means for the pain index, which was (3.857), then the values of the pre-measurement were greater than the post-measurement and from the direct relationship For the results, that is, the lower the results of the MSD test, the more positive the results are. And that the pain begins to decrease as soon as the body undergoes a kind of physical and sports conditions as a result of the blood supply to nourish the body systems and muscles in general, which helps to improve the psychological condition first and then the physical condition (Drury, 1970, 99).

This was confirmed by Samer Mahdi Muhammad Salih in his study, where he emphasized that the use of exercises leads to neurological adaptation in the rotation of the work of muscle fibers, which is reflected in the development of the characteristic of stiltness (Saleh, 2022, 131). It is summarized that the results are due to the preference for the post-measurement, and this supports the validity of the hypothesis that acupuncture has an effect on pain management based on the MSD test to measure the pain rate.

What is the effect of using acupuncture in improving the explosive power of the upper limbs? Evidence that the analgesic effect of acupuncture involves the thalamus is demonstrated using FMRI, positron emission tomography, and brain imaging techniques (Shen, 2001, 128) and via feedback pathways from the cerebral cortex using functional electro-recording devices to directly record nerve impulses in neurons in the cortex, which show an inhibitory effect during acupuncture. (Liu, Han & Su, 1990, 45), which inhibits pain and makes muscles work comfortably without pain, and this is what we found it from Table (05), which indicates that there are statistically significant differences with regard to the explosive power of the upper extremities, so that the value of sigma is equal to (0.01), which is completely less than the level of significance (α=0.05), and this indicates that there is a higher statistical function in favor of the dimensional measurement, so that we see from Subtracting the averages of the pre and post measurements, the value is negative and equal to (-0.414), meaning that the post measurement is greater than the pre measurement, and this proves the validity of the second hypothesis, which says that acupuncture has an effect on the explosive force of the upper limbs. The researcher attributes that the development in the strength table to the activation of blood circulation, which led to an increase in blood flow to the region and thus increased muscle nutrition and growth, in addition to increasing the nutrition of tendons and ligaments and bones, as well as the fact that the exercises increase neuromuscular compatibility (Al-takriti, 1983, 76).

4. Conclusion:

Chinese acupuncture works to stimulate and increase blood circulation in the treated site, and stimulates the secretion of endorphins, which in turn acts as an inhibitor of the action potential of pain, if not reducing pain in some cases, especially in the treatment of pain related to the elbow, as it stimulates the nervous system and increases its efficiency, With the development of some physical characteristics, including the explosive strength of the upper limbs, therefore it is recommended for the treatment of some cases related to injuries and as an alternative medicine and treatment of pain of all kinds, regardless of its different locations, with the need to pay attention to the benefits and generalize its studies and awareness of its benefits with its use in training and the development of some physical characteristics.

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