

The Effectiveness of Foot Reflexology Massage on Pre-Tournament Fear in Artistic Gymnasts

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Abstract: Sports competitions are intense tests that evaluate a player's abilities, leading to an increased interest in improving overall performance. Players face numerous situations and stimuli that can cause anxiety and impact their behaviors, abilities, and relationships. During training, especially the pre-competition stage, players often use massage as a common technique, symbolizing the culmination of their efforts. There is a need for modern methods to overcome competition anxiety and enhance players' performance. Massage reflex points in the feet are one way to feel comfortable and relaxed. It is the art of manipulating soft tissues to improve system functions and reduce fatigue effects. Research has addressed pre-tournament anxiety, but studies have not addressed contraindications, such as foot infections, bleeding, wounds, dislocation, purulent infections, and rheumatic infections. This study sheds more light on the effectiveness of the technique of tournament fear foot reflexology massage on pre-artistic gymnasts.

Keywords: Competition Anxiety, Player Performance Evaluation, Pre-Competition Preparation, Massage in Sports Training, Reflexology Massage, Physiological, and Effects of Massage.

Introduction

Friendly or official, sports competitions serve as a rigorous test and evaluation of a player's abilities. They exhibit high intensity, and the players are aware that, among other things, the extent of their victory or gain determines their value and appreciation. The nature of the sports field also imposes a basic aspect of sports competition, which has led to an increase in interest in evaluating and measuring its dimensions to improve overall performance in the field. Especially during the period of sports competitions, the player encounters numerous situations, events, and stimuli that directly and closely link to anxiety. They may have clear and direct effects on the behavior of the sports player in general, the level of his abilities, and his relationships with others. Massage is one of the most commonly used methods during the training process, and it has become an integral part of the training plan at all stages, including preparation, competition, and transitional stages, particularly the pre-competition stage, as it represents the culmination of the player's efforts to achieve victory. (43:) Therefore, it is necessary to explore modern means and methods that aid in overcoming competition anxiety and enhance players' performance before the competition. Ishleber Gertralid's study confirmed that massaging the reflex points in the feet is one way to feel comfortable and relaxed .

Qadri Bakri (2001) defines foot reflexology massage as the art of directly manipulating the soft tissues of the body, either through hands or alternative methods, in a standardised scientific manner. The objective is to enhance the functions of the body's various systems and organs and alleviate the effects of fatigue, regardless of whether the individual is an athlete or not (5:20). Gungorin Street's (1994) research in the Swedish medical course shows that massaging the reflex points in the feet can trigger a physiological response that occurs far from the massage site, and the area of influence has no anatomical relationship with the pressure point. Researchers have concluded that the massage method activates or calms the nervous system, stimulates blood circulation, regulates glandular secretions, balances energy in the body, enhances overall health, and alleviates nervous tension (199:7). Many studies and research have addressed the problem of pre-tournament anxiety. A variety of studies and research has examined the issue of pre-tournament anxiousness. Numerous studies on pre-tournament

anxiety have established the extent of the detrimental effects of the player's state of fear and tension before the tournament. These studies often overlook various issues such as foot infections, bleeding, wounds, dislocations, or sprains.

Research Problem

Pre-competition anxiety is considered one of the most influential factors in players' performance before the competition. These studies have focused on analyzing descriptive data to mitigate the negative effects of anxiety that players experience before competitions, while also exploring potential solutions to this issue. In this study, the researcher employs reflexology in the feet as a strategy to address this issue by enhancing players' performance, particularly before the competition, and preparing them for optimal tournament performance.

Study Objectives

This research aims to identify the effectiveness of reflexology massage as follows:

- 1- Identify the effectiveness of reflexology massage in the feet based on some physiological variables associated with pre-tournament anxiety.
- 2- Identify and verify the effectiveness of reflexology massage on some chemical variables associated with pre-tournament anxiety in the study.

Research Terms

1. Reflexology massage is a nerve pathways in the feet and throughout the body function to replenish energy within the body and preserve a state of stability or balance for various body organs. (Procedural definition)
2. Championship anxiety is the tension arising from the factors of a sports championship that the athlete determines through his association with one of the sports championships in the sports season. (Operational definition)
3. Bioenergy is the electromagnetic waves or vibrations that become invisible in channels and paths inside the body. It charges every cell that passes through it during its continuous movement. It can be measure inside and outside the body, as it is the source of the real physical life current (8:16).

Literature Review

Best and others investigated *The Effectiveness of Sports Massage In Muscle Recovery After Physical Training* (2008). The study aimed to investigate the effect of high intensity. The researcher employed a descriptive approach, conducting the study on a sample of 22 students. The most important results of the study were that 17 students would not show any feeling of recovery after massage sessions. The ten other students experienced a minor recuperation following their massage sessions.

Malik Hakan's (2008) study, *The Effect of Pre-competition Massage on Boxers*, identifies the effect of pre-competition massage on boxers. The study applied the experimental method to high-level boxers. The sample was 42 newborns. It divided the sample of 42 newborns in the building stage into two groups: the experimental group and the control group. The study yielded the following significant results: The experimental group that underwent a massage session showed better results than the control group (without massage) for a period of five weeks in the variables of weight gain and insulin levels (IGf).

Hamilton & MaCrae (2002) presented an experimental study to evaluate the effect of reflexology on the psychological state and improvement of side effects in cancer patients. Their study aimed to evaluate the effect of reflexology on the psychological state and improvement of side effects in cancer patients. The researchers employed the experimental method, dividing the sample size of 26 patients with various cancer types into two experimental groups. The first group of 13 patients underwent maximum oxygen consumption sessions with a load less than the maximum (100%). Away from all the previous studies, the present study focuses on the competition anxiety related to the player's

performance evaluation during pre-competition preparation. It uses massage as a technique in sports training, besides reflexology massage, to identify the physiological effects of massage .

Research Methodology

The researcher employed the experimental method with a single-group design because it was appropriate for the nature of the research.

The study under investigation:

Research areas:

Time domain: All research procedures took place in the time domain of 2024-2025.

The human domain consists of artistic gymnastics players located in the Baghdad and Diyala Governorates.

Spatial domain: All research procedures took place in the Baghdad Governorate and included massage sessions in either physical therapy halls or private halls.

Research Sample

Eight players, intentionally selected from the clubs of Baghdad-Diyala, ranging in age from 14 to 16 years, will comprise the research sample. Two gymnasts participated in the exploratory study, while six gymnasts were involved in the main study.

Table (1). The initial measurements of the statistical description of the research sample data

Variables	Arithmetic mean	Median	Standard deviation
age (year)	162	1.6	0.707
high (cm)	170	5.13	0.835
Widget(gm)	59	3.5	0.756

Table (1) shows many issues:

A- Conditions for selecting the sample:

- 1- The player must be consistent in your training and play a key role in the artistic gymnastics teams participating in the championship.
- 2- He must voluntarily agree to conduct the measurements for the research.
- 3- Agree to take a blood sample for analysis.

B- Data collection methods and tools:

The researcher used a set of measurements for data collection:

➤ Testing the level of anxiety using the device:

This device is used to know the level of anxiety of the player.

➤ **The device** used is a relexometer.

➤ **Method Used:**

The player lies on a mattress and connects the electrons of the negative and positive to any two fingers of one hand. The method used to calculate the results and their respective levels is as follows. We adjust the device and measure the level of anxiety.

B: Measuring the level of norepinephrine concentration in the blood:

➤ **Objective of measurement:** To identify the concentration of the hormone norepinephrine in the blood.

➤ **Device used:** The technique for determining the outcomes and the degree was employed.

Exploratory studies:-

The issues of exploratory studies, which focused on artistic gymnastics players, identifies several goals:

- 1- Test the validity of the devices and tools for measurements.
- 2- Train assistants on how to implement measurements.
- 3- Organize the process of implementing measurements in stations in a sequential and easy manner..
- 4- Observing the sequence of measurements and arranging them and training on the method of recording measurement results in registration forms to ensure measurement accuracy.
- 5- The researcher identifies the difficulties that hinder the implementation of measurement procedures and finds appropriate solutions for them.

The researcher prepares and equips the tools for the measurements used in the research to ensure their validity. The researcher arranges the measurements in stations and provides assistance by explaining the measurements and their implementation method.

Pre-competition stage:

The pre-competition stage is characterized by functional, psychological, and physical changes that precede the start of the competition. During this period, one can distinguish rapid functional changes at the start of the preparation period, which include the prepared state and the relatively variable state that follows. These changes appear in the various functions of the body before starting to perform the muscular work and while waiting for it. These changes focus on the body's readiness to successfully perform the sporting activity.

Applying reflexology massage strategies in the feet:

First: The goal of the programmer sessions:

The massage programmer aims to reduce the degree of anxiety before the tournament.

Second: The development of the massage programmer was based on certain foundations.

The researcher applied the general scientific foundations of reflexology massage to the feet. The researcher prepared all the administrative procedures, human capabilities, tools, and devices required of him.

The researcher may take into account the following principles to ensure the success of the massage programme:

- 1- The massage programme is appropriate for the research sample and aligns with the overall goal.
- 2- determining the most important duties of massage, the availability of capabilities and tools, the devices used, and the flexibility of the programme to the appropriate extent during the period of its application.
- 3- Using some studies that have been conducted in this field and benefiting from the measurement before and after the tournament.

The research team, consisting of eight players, carried out the measurements in Baghdad and university stadiums. These measurements involved assessing the players' anxiety levels with a device and taking a blood sample to gauge the norepinephrine concentration in their blood.

Third: Steps to build a massage session:

The researcher successfully identified the fundamental steps for the massage program, with the following being the most crucial ones:

- 1- Determine the basic points in the massage.
- 2- Establish the duration of the massage at the adrenal gland point.
- 3- Determine the appropriate time for the massage session in general and for each point in particular.
- 4- Determine the shape and way the player sits during the massage session.
- 5- Determine the shape and direction of the massage.

Reflexology massage on the feet is a physiological effect that leads to a physiological response that is far from the massage site, and the area of influence has no anatomical relationship with the pressure point. The deduced physiological effects include activating or calming the nervous system, activating blood circulation, regulating glandular secretions, balancing energy in the body, improving general health, and reducing nervous tension, depending on the massage method (44:2). To complete one session, allocate 20 minutes and follow these steps: Move the foot in a circular motion by supporting the heel with the hand and making the foot rotate with the other hand five times clockwise and five times anticlockwise.

Measurement After Foot Massage Session:

The researcher conducted measurements on the research sample of eight players. He conducted measurements after a two- to five-minute massage session, which involved using the device to measure the degree of anxiety and drawing a blood sample to measure the level of norepinephrine concentration.

The Researcher Employed The Following Statistical Techniques:

- 1- Arithmetic mean, median.
- 2- Standard deviation.
- 3- Flattening coefficient.
- 4- Conduct a T test for one group and for both groups.
- 5- Pearson correlation coefficient.
- 6- Percentage of improvement and differences.
- 7- One-way analysis of variance (ANOVA).
- 8- Least significant difference test LCD.

The researcher identifies the significance of using the massage method for athletes, specifically point massage, before the tournament stage. This is due to the importance of this stage for the player and the ease with which point massage can be applied during the pre-tournament stage to bring the player to an optimal state of readiness and to reduce the negative effects associated with this stage.

The basic study (main steps)

1- Measurement one month before the tournament:

Five minutes after the session, we conducted measurements on the research sample, which consisted of eight players. The measurements included the degree of anxiety and the concentration of norepinephrine in the blood.

Table (2) The research variables show a significant difference in the averages of the two measurements one month before the tournament, two days before the tournament, and after the massage

Variables	Statistical significance of description				
	Percentage	Arithmetic mean	Standard deviation	Low score	Highest score
One Month Before the Tournament	8	1.750	0.707	1.00	3.00
Two Days Before the Tournament	8	5.125	0.835	4.00	6.00
After massage method	8	3.500	0.756	3.00	5.00

Table (2) supports the distinction between the average measurements before the tournament, two days of participation, and after the least significant difference (LSD).

- **Anxiety level:** Two days before the tournament, the anxiety level rose by 1.750 compared to before the tournament, and it continued to increase by 3.500 after the tournament. The anxiety level decreased by 1.750 compared to before the tournament.
- **The level of adrenaline concentration in the blood** was significantly higher two days before the tournament compared to a month later, with a difference of 0.707 and a difference of 0.756. The concentration of adrenaline in the blood was concentrated two days prior to the tournament, specifically two days after the tournament. The electric lamp, fear, and tension were all present.

The researcher explains through the results the effectiveness of reflexes, which can be used to reduce the levels of this relationship after the pre-tournament stage. This helps him reduce the effectiveness and tension of the players, as well as increase the connections of the joints and muscles and the effectiveness of the autonomic nervous balance, which affects the efficiency and helps to activate the skin and blood circulation in the body.

Table (3) The percentage differences between the two means one month before the tournament, two days before the tournament, and after the massage

Variables	Statistical significance of description				
	Squares Sum	Freedom Degree	Mean square	Difference Between Squares	Error Percentage
Between measurements	45.583	2	22.792	38.677	.000
Within measurements	12.375	21	0.589		
Total	57.958	23			

It is clear from the table(2) of differences between the measurement a month before the championship and the measurement after the massage for the research variables for the experimental research group that there are differences between the two measurements in all variables, as it is clear that the level of anxiety increased after using the massage, the level of adrenaline concentration in the blood increased after the massage, the pulse rate increased, and the number of respirations increased after the massage.

Table (3) The statistical description of the research sample data in the research measurements was conducted one month before the tournament, two days before the tournament, and after the massage in the research variables

Anxiety score	Two days before Tournament	Standard Error	Mean Difference	Totale
One month before tournament	After Massage	-3.37500-*	.384	.000
Two days before tournament	After Massage	-1.75000-*	.384	.000
		1.62500*	.384	.000

Table (3) for the analysis of variance (ANOVA) between measurements one month before the tournament, two days before the tournament, and after massage in the research variables shows that there are significant differences between measurements one month before the tournament, two days before the tournament, and after massage in the research variables, as the value of F ranged between 22.792 and (0.589), and this value is greater than the tabular value of F at the level of ..., and to determine the significance of the differences between measurements one month before the tournament, two days before the tournament, and after massage in the research variables, the least significant difference test (LSD) was used.

Measurement after the treatment session:

Five minutes after the session, the research sample, which consisted of eight players, underwent measurements. The measurements included the degree of anxiety and the concentration of norepinephrine in the blood.

The table of the differences between the measurement one month before the tournament and the measurement two days before the tournament shows that there are significant differences between the two measurements in all variables. For example, the level of anxiety went up two days before the tournament, as did the concentration of adrenaline in the blood, the heart rate went up, and the number of breaths taken went up. The researcher explains these results by stating that the importance of the tournament, the amount of training effort, physical skill and planning preparation, and athletic effort influence these variables, leading to an increase in the level of anxiety, the level of adrenaline concentration in the blood, the pulse rate, and the number of respirations.

The findings align with the findings of Hamilton & Macrae (2002) and Malik Hakan et al. (2008), suggesting that the player's anxiety triggers an increase in pulse rate, respiration, and blood pressure, leading to a rise in body temperature and blood flow rate. The study by Best et al. (2008) explains that different sports situations affect the player as an integrated unit. Sports competition leads to physiological and chemical changes within the athlete as a result of changes in hormonal activity. The degree of positivity in physiological changes and energy production indicators determines the player's anxiety level prior to competition. These indicators enable the body's systems and organs to adapt to the effort and fatigue of sports competition, which is often associated with emotional situations of varying intensity, along with the physiological, biological, and chemical aspects associated with these situations (11: 423).

These results are consistent with the study by Malik Hakan and others (2008), which concluded that reflexology massage sessions had a positive effect on reducing the pulse rate and blood pressure in favor of the experimental group. Ahmed Abdel Hadi (2001) suggests that massage serves as a crucial tool for high-level athlete preparation due to its low requirements, ease of implementation, and medical benefits that accelerate recovery. Given the difference in massage methods according to the intended goal or the part of the body that is being performed, the nature of the muscular work performed must be combined with the massage method that is being performed, as muscular fatigue is considered one

of the important problems that limit the player's efficiency and prevent him from continuing to perform (2: 419).

These results align with the findings of a 2008 study by Malik Hakan that concluded that the use of reflexology massage on the feet and hands for recovery improved neuromuscular coordination. It also improved the speed of motor frequency, the efficiency of the central and peripheral nerves, and the ability to conduct nerve signals. The study also found that reflexology massage was relatively more effective than the other two types in affecting the neuromuscular system, and that it had positive effects on the speed of preparation for competition and the return to normal during rest.

These results are consistent with the study of Malik Hakan et al. (2008), which concluded that a reflexology session on the feet before performing physical exercise affects the biochemical variables of energy fuel mobilization and consumption. The study by Hamilton and Macrae (2002) agrees with these results. That study found that the experimental group that got the massage had positive changes in some physiological variables (pulse-pressure) and insulin levels. The study underscored the significance of oil massage in enhancing the patient's psychological and physical comfort with each session. As the treatment sessions progress, the patient gradually progresses towards recovery due to the increased blood and energy flow throughout the body.

Pre-championship stage for the athlete:

The researcher explains through following the research plan that the pre-championship stage is the period of time for the player to prepare before the start of the tournament, and where it includes preparing the player functionally, physically, psychologically, and mentally, through which an hour and a half is determined before the tournament.

References

1. Abdel Fattah A. A.(1998). *Biology of Sports and Athlete's Health*. Dar Al-Fikr Al-Arabi, Cairo.
2. Abdel Hadi, A. M. (2001). *The Effect Of Two Different Massage Methods On Some Biological Variables Of Swimmers During Competition*. (PhD thesis, Faculty of Physical Education for Boys). Cairo.
3. Abdel-Zaher, M. M. (1996). Abdel-Zaher, M. M. (1996) conducted a master's thesis at the Faculty of Physical Education for Boys in Cairo, examining the impact of recovery methods on the speed of muscle fatigue removal in athletes.
4. Amin T. F. & Rabie T. (2013) *Healthy Sports and Energy Balance*, (First Ed), Dar Al-Wafaa for Dunya Printing and Publishing, Alexandria.
5. Best Other (2008) The effectiveness of sports massage in muscle recovery after physical training The Title of the Strenuous Study Is To Identify The Effectiveness Of Sports Massage In Recovery After High-Intensity Loads. The aim of the research is to identify the effectiveness of sports massage in recovery after high-intensity loads.
6. Carter, M.(2005). *Reflexology*. Tammy Weber.
7. El-Kharboutly, S. S. (2008). *Postural Fitness and Massage*, Dar Al-Jami'een for Printing, Alexandria.
8. Hamilton & MaCrae (2002): A Survey Study To Evaluate The Effect Of Reflexology On Psychological State.
9. Maher, G. N. (1992). *Alternative Medicine*, Al-Matbouat Company for Distribution and Publishing, Beirut, Lebanon.
10. Malik Hakan and others Malik Hakan, Other (2008).
11. Zainab El-Alam (1993) defined Bakri M. K. (22001), *Traditional and Oriental Massage in Alternative Medicine as a mechanical stimulation divided into doses for the human body, using either the masseur's hand or his special devices*. Cairo.