



A Study on the Opinions of Physiotherapists Regarding the Methods Used in the Recovery Process of Volleyball Players in the Libyan Premier League

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ABSTRACT

This research aims to study the opinions of a group of Libyan physiotherapists about the recovery methods used in the recovery process of volleyball players in the Libyan Premier League. To achieve the research objective, the descriptive method was used as it suits the nature of this research. The sample consisted of 18 physical therapists who accompany volleyball players in sports clubs in Libya. The participants was selected intentionally. The research tools used in this study is the questionnaire. The most important results of this research are that the recovery methods used in the recovery process of volleyball players in the Libyan Premier League are cold water immersion, relaxation exercises, and massage. The order of the recovery methods used in the recovery process for volleyball players in the Libyan Premier League was as follows: first; cold water immersion, second; relaxation exercises, and third; massage. The most important recommendations of this study are to provide the necessary financial support for the use of modern devices and methods during the recovery process of volleyball players in Libya. We also recommend conducting similar research to determine the effectiveness of physical therapy programs in the recovery process for volleyball players in Libya.

Keywords: Physical therapists, recovery methods, recovery process, volleyball players.

INTRODUCTION

According to Matveev [1], sports training means procedures based on special scientific and educational foundations that lead to building an athlete in an integrated manner from all physical, skill, tactical and psychological aspects. It also leads and directs him towards raising his level and his continuous athletic achievement in specialized sports with the aim of reaching the high level. Sports training physiology looks for the physiological changes that occur during sports activity. It aims to identify the effect of physical or skill movements in general on the functions of vital systems and various body organs. This is why sports training physiology is considered one of the most important basic sciences for those working in the field of sports training and sports health sciences.

Muscle fatigue is considered a physiological phenomenon with negative effects that occur as a result of physical effort. The degree of intensity and duration of muscular work increases in the chemical splitting of glycogen stored in both the liver and muscles to rebuild ATP to produce energy in light of the severe shortage in the amount of oxygen consumed. This results in increased accumulation of lactic acid in the blood and muscles, which leads to the phenomenon of muscle fatigue and decreased ability to perform [2].

Muscle fatigue is one of the most important problems that affect the level of a player's performance. This is a multifaceted phenomenon. Whenever there are different types of muscle work, there are different types of muscle fatigue. Muscle fatigue resulting from static muscle work differs from the type of muscle fatigue resulting from dynamic muscle work, and fatigue also varies according to the degree of difference in muscle work, its duration or performance, and the rest periods that exist during performance [3].

When lactic acid is concentrated in the blood and muscles and reaches a high level, it affects the nerve endings, leading to feelings of pain, increased irritation of the central nervous system, weak muscle contraction, and impeding motor performance [4].

Lactic acid is one of the main causes of muscle fatigue. This is related to the phenomenon of fatigue, so measuring the level of blood lactate represents an important indicator of muscle fatigue, since the level of blood lactate is a good indicator of performance endurance. Because the response of blood lactate to training is very sensitive, training programs need more specialized planning linked to the response of blood lactate levels [5].

Based on what was mentioned, it becomes clear that it is necessary to use recovery methods in planning training programs and the content of physical therapy units. This is because it is of great importance in renewing the athlete's activity and restoring his physical and psychological state to that before the sporting effort, as well as increasing his ability to continue sporting performance at the same physical and skill level.

Recovery is the period following the execution of physical effort in general, that is, the rest period that leads to the return of the athlete's body to the state in which it was before performing physical effort [6].

Generally, the means of recovery used in the field of sport are as follows:

- Cold water immersion: It is a recovery method used to restore an athlete's health condition through cooling water or ice baths, and it can be used before, during, or after exertion;
- Massage: It is a recovery method used to rejuvenate an athlete's activity through physical therapy devices or manual methods that help increase blood flow and stimulate blood circulation. It can be used before, during, or after sports performance;
- Relaxation exercises: They are recovery methods used to return an athlete to his pre-exertion condition by calming the body's muscles through free exercises or sports equipment. They can be used before, during, or after sports performance.

Through his experience in the field of training, his practice of playing and training volleyball, his constant review of many training units for volleyball coaches, his survey of their opinions on their use of recovery methods, and his follow-up of the training units and matches, the researcher noticed that most Libyan sports teams use one method in the recovery process, although it can be used Various healing methods, such as cold water immersion, relaxation exercises, and massage. These methods help to get rid of the accumulation of lactic acid in the muscles and thus remove muscle fatigue. They also stimulate blood circulation and contribute to improving the functioning of the nervous system and the health condition of volleyball players and their appearance at the required level. The importance of this research is evident in advancing the sciences of sports health, sports injuries, and sports medicine; Improving the health condition and rapid recovery of volleyball players; developing the capabilities of physical therapists accompanying volleyball teams; achieving the highest level of skill performance among volleyball players and reducing sports injuries that volleyball players may be exposed to.

Research Objective

This research aims to study the opinions of a group of Libyan physiotherapists about the recovery methods used in the recovery process of volleyball players in the Libyan Premier League.

Research Questions

In relation to the research objective, the researcher attempts to answer to the following questions:

1. What is the opinion of the physical therapist on the recovery methods used in the recovery process of volleyball players in the Libyan Premier League?
2. What is the timing of the recovery methods (Coldwater immersion, massage, relaxation exercises) used in the recovery process of volleyball players in the Libyan Premier League?
3. What is the order of recovery methods (Coldwater immersion, massage, relaxation exercises) used in the recovery process of volleyball players in the Libyan Premier League?

METHODOLOGY

Participants

The research participants consisted of physical therapists accompanying volleyball players in sports clubs in Libya.

They were chosen intentionally from the research community and numbered 18 physical therapists who accompany volleyball players in sports clubs in Libya. In tables 1 and 2 are presented the data relating to the participants.

Table 1: The frequency distribution of the study participants taking into account gender.

The gender of participants	Male	Female	Total
Frequency	12	06	18
Percentage	66.67%	33.33%	100%

Table 2. The frequency distribution of the study participants according to academic qualifications.

Academic qualification	Master's	Ph.D	Total
Frequency	16	02	18
Percentage	88.89%	11.11%	100%

It is clear from the table 2 that 88.89% of the participants have a master's qualification, and 1.11% have a doctorate qualification. Which indicates that most of the participants have a high degree of academic qualification and can benefit from them in the subject of the study.

Method

To achieve the research objectives, the researcher adopted the scientific method that guarantees the accuracy and integrity of the results, using the descriptive method, which is considered one of the most appropriate methods to achieve the objectives of this research. The descriptive approach is compatible with the procedures of this study. This is to search for an answer to these specific questions, especially since the situation in this study requires collecting information about a specific phenomenon for the purpose of diagnosing it in the current situation by providing a scientific description of it and quantifying it after collecting the data and subjecting it to classification, analysis and interpretation.

Research Tools

In this research, we used a questionnaire to identify the means, timing and order of recovery used in the recovery process for volleyball players in the Libyan Premier League. This questionnaire was presented to the experts and they reported that it was 100% suitable for measuring the goal for which it was developed. The researcher codified it and found scientific parameters for it, as the reliability coefficient reached 0.84, and it was ready to be applied to the research sample.

Procedures for Applying the Questionnaire

The researcher applied the questionnaire under study to the sample during the period from July 1, 2023 to July 15, 2023. The researcher distributed the questionnaire to the study sample, where 20 questionnaire forms were distributed to the sample members. After collecting the questionnaire forms, the number of missing samples was 2, and it was recovered. 18 questionnaire forms, i.e. 90%.

Table 3: The distribution of questionnaires and responses that are subject to statistical analysis related to the research participants (Physical therapists).

Distributed number	Responses	Lost	Response rate	Number capable of statistical analysis	Percentage
20	18	2	90%	18	100%

Statistical Tools

The research data was processed using the SPSS statistical program (Version 2020), and the following statistical treatments were used:

- The Pearson correlation coefficient to calculate the validity of the internal consistency between the questionnaire statements.
- The Weighted mean.
- The percentage.
- The relative weight.

RESULTS AND DISCUSSION

At first, the opinions of the research participants will be discussed regarding the recovery methods used in the recovery process of volleyball players in the Libyan Premier League. These opinions are included in Table 4.

Table 4: Percentage, relative weight, and weighted mean of the study participants, according to their opinion of the recovery methods used in the recovery process of volleyball players in the Libyan Premier League.

n°	Recovery means used	Percentage			Relative weight	Weighted mean	Ranking
		Agree	To some extent	Disagree			
1	Cold water immersion	88.89	0.00	11.11	90.0	2.7	1
2	Massage	55.56	44.44	0.00	83.3	2.5	3
3	Relaxation exercises	66.67	33.33	0.00	86.66	2.6	2

Regarding the research results related to the timing of recovery methods (Cold water immersion, massage, and relaxation exercises) used in the recovery process of volleyball players in the Libyan Premier League, they were presented in Table 5. The aforementioned table shows the frequency distribution of the participants according to their opinion regarding the timing of cold water immersion used in the recovery process of volleyball players in the Libyan Premier League.

Table 5: The frequency distribution of the participants according to their opinion regarding the timing of cold water immersion used in the recovery process of volleyball players in the Libyan Premier League.

What is the timing of cold water immersion used in the recovery process of volleyball players in the Libyan Premier League?	Before compétition	During compétition	After compétition	Total
Repetition	6	2	10	18
Percentage	33.33%	11.11%	55.56%	100%

It is clear from the results of table 5 that 3.33% of the participants believe that cold water immersion timing used in the recovery process of volleyball players in the Libyan Premier League is before the competition, while 11.11% of participants believes that it is during the competition, and 55.56% believes that it is after the competition. Which indicates that the majority of participants believes that the appropriate time to use cold water immersion in the recovery process of volleyball players in the Libyan Premier League is after the match.

Regarding the timing of massage used in the recovery process of volleyball players in the Libyan Premier League, Table 6 shows the frequency distribution of the study participants according to their opinion of the timing of massage used in the recovery process of volleyball players in the Libyan Premier League.

Table 6: The frequency distribution of the participants according to their opinion regarding the massage used in the recovery process of volleyball players in the Libyan Premier League.

What is the timing of massage used in the recovery process of volleyball players in the Libyan Premier League ?	Before compétition	During compétition	After compétition	Total
Repetition	4	2	12	18
Percentage	22.22%	11.11%	66.67%	100%

It is clear from the results of Table 6 that 22.22% of participants believe that the timing of massage used in the recovery process of volleyball players in the Libyan Premier League is before the competition, while 11.11% of participants believes during the match, and 66.67% see it after the competition. Which indicates that the majority of participants believes that the appropriate time to use massage in the recovery process of volleyball players in the Libyan Premier League is after the competition.

The research results related to the timing of relaxation exercises used in the recovery process of volleyball players in the Libyan Premier League are presented through Table 7, which shows the frequency distribution of the study participants according to their opinion of the timing of relaxation exercises used in the recovery process of volleyball players in the Libyan Premier League.

Table 7: The frequency distribution of the participants according to their opinion regarding relaxation exercises used in the recovery process of volleyball players in the Libyan Premier League.

What is the timing of relaxation exercises used in the recovery process of volleyball players in the Libyan Premier League?	Before compétition	During compétition	After compétition	Total
Repetition	4	2	12	18
Percentage	22.22%	11.11%	66.67%	100%

It is clear from the results of Table 7 that 22.22% of participants believe that the timing of relaxation exercises used in the recovery process of volleyball players in the Libyan Premier League is before the competition, while 11.11% of participants believes during the match, and 66.67% see it after the competition. Which indicates that the majority of participants believes that the appropriate time to use relaxation exercises in the recovery process of volleyball players in the Libyan Premier League is after the competition.

The ranking of recovery methods (cold water immersion, massage, relaxation exercises) used in the recovery process of volleyball players in the Libyan Premier League is presented in Table 8, which shows the frequency distribution of the study participants according to their opinion in the ranking of recovery methods used by volleyball players in the Libyan Premier League.

Table 8: The frequency distribution of the study participants according to their opinion in the ranking of recovery methods used by volleyball players in the Libyan Premier League.

What is the ranking of cold water immersion used in the recovery process of volleyball players in the Libyan Premier League?	First	Second	Third	Total
Frequency	12	2	4	18
Percentage	66.67%	11.11%	22.22%	100%
What is the ranking of massage used in the recovery process of volleyball players in the Libyan Premier League?	First	Second	Third	Total
Frequency	2	6	10	18
Percentage	11.11%	33.33%	55.56%	100%
What is the ranking of relaxation exercises used in the recovery process of volleyball players in the Libyan Premier League?	First	Second	Third	Total
Frequency	6	10	2	18
Percentage	33.33%	55.56%	11.11%	100%

From Table 8, it is clear that 66.67% of the participants believe that the order of cold water immersion used in the recovery process of volleyball players in the Libyan Premier League is first, while 11.11% of the sample believes that it is second, and 22.22% is third. Which indicates that most believe that the order of using cold water immersion in the recovery process of volleyball players in the Libyan Premier League is first.

Table 8 also shows that 11.11% of the participants believes that the order of massage used in the recovery process of volleyball players in the Libyan Premier League is first, while 33.33% of the participants believes that it is second, and 55.56% is third. Which indicates that most believe that the ranking of the use of massage in the recovery process of volleyball players in the Libyan Premier League is third.

Regarding relaxation exercises, it is clear from Table 8 that 33.33% of the participants believe that the order of relaxation exercises used in the recovery process of volleyball players in the Libyan Premier League is first, while 55.56% of the participants believe that it is second, and 11.11% see it as third. Which indicates that most believe that the order of using relaxation exercises in the recovery process of volleyball players in the Libyan Premier League is second. The results of this research are consistent with Al-Rubaie's [7] study on the effect of recovery periods on the recovery of energy system composites. This study aimed to develop a schedule to standardize recovery periods between repetitions, groups, and training units. It also aimed to identify the effect of recovery periods on the development of energy systems in volleyball players. The most important results of this research is that regulated recovery periods play a major role in restoring the building of energy components, and that restoring energy system components directly contributes to performing motor duties well, and that unorganized scheduling of recovery periods does not achieve the required purpose of training, which is raising the level of athletic performance.

The results of this research are also consistent with the study of Al Nuaimi, and Hashem [8], which was the subject the effect of using positive and negative rest during the training unit on the level of performance. This study aimed to identify the effect of using positive rest exercises during training units and the training effects on the level of competitors' performance. The most important results of this study are that the use of recovery methods (positive and negative rest) during the inter-rest periods in the training unit has no effect when fatigue is low as a result of exerting a low training load in terms of volume and intensity. Using positive rest as a means of restoring recovery in the inter-rest periods during the training unit is better than using negative rest in removing fatigue as a result of the exerted effort, which helps to perform the following training effects effectively and thus improves the level of achievement.

It can also be considered that the results of the Farid [9] study are in line with the results of the current research. The subject of this study was the dynamics of heart rate during the recovery period and its relationship to the level of digital achievement of half marathon runners. This study aimed to identify the nature of heart rate changes during the recovery period after performing a half marathon race, and to identify the relationship between the recovery rate curves and the level of digital achievement of half marathon runners. One of the most important results of this research is that the half-minute, first and second minutes are characterized by a faster recovery rate than minutes 3-10, and the average recovery period is related to the level of digital achievement; higher the level of digital achievement, shorter the recovery period.

CONCLUSIONS

At the end of this research we can conclude that:

1. The recovery methods used in the recovery process of volleyball players in the Libyan Premier League are cold water immersion, relaxation exercises, and massage.
2. The timing of the recovery methods (cold water immersion, relaxation exercises, and massage) used in the recovery process of volleyball players in the Libyan Premier League was after the match.
3. The order of the recovery methods used in the recovery process of volleyball players in the Libyan Premier League was as follows: first, cold water immersion, second; relaxation exercises, and third; massage.

Recommendations

Considering the research results, we recommend the following:

1. Organizing training courses for those in charge of physical therapy programs of volleyball players in Libyan sports clubs to learn about all the latest scientific research in the field.
2. Providing human cadres specialized in physical therapy in sports clubs in Libya.
3. Providing the necessary financial support to use modern devices and methods during the recovery process of volleyball players in Libya.
4. Conduct similar research to determine the effectiveness of physical therapy programs in the recovery process of volleyball players in Libya.

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