

Examination of Postgraduate Theses on Foam Roller in the Field of Sports Sciences in Turkey

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ABSTRACT

Background: In recent years, it is known that myofascial relaxation exercises have become frequently used in the field of sports for both warming up and post-activity relaxation. Foam roller is a widely used tool for the application of self-myofascial release. Foam roller tool is an ideal method that can be applied by the individual himself. In this method, the individual uses body weight to apply pressure to soft tissues during the rolling motion. In this context, many studies have been conducted to examine the self-myofascial release method and the effectiveness of foam roller has been tried to be determined.

Aim: The aim of the research is to examine the researches on foam roller in the postgraduate theses published in the field of sports sciences in Turkey.

Methods: This research was designed using the systematic review method. Between 01.03.2022 and 02.04.2022, a total of 17 theses were reached as a result of the search made by searching the keywords "foam Rolling, foam roller, köpük silindir" in Turkish-English languages by filtering with the word "Sport" on the database of the National Thesis Center. As a result of the first evaluation made within the framework of the inclusion criteria, it was determined that 5 theses were outside the field of sports sciences and 2 theses were found in the previous scan, and this thesis was not included in the research. Within the scope of inclusion criteria, it was determined that there were 9 postgraduate theses and these theses were included in the research and the data of the research were obtained.

Results: It has been determined that the thesis researches on foam roller have been carried out in Turkey since 2018. In addition, it was determined that all theses were at the master's level. In the thesis researches, it was determined that the effectiveness of foam roller applications was compared with various other applications. It has been determined that researches have been carried out especially to increase sportive performance and recovery.

Conclusion: It has been concluded that thesis researches on foam roller in the field of sports sciences in Turkey are generally done in order to increase sportive performance and accelerate recovery. In this context, it can be suggested that future studies should be conducted with different sportsmen and larger sample groups.

Keywords: Foam roller, myofascial relaxation, self-myofascial release

INTRODUCTION

Fascia is an elastocollagenous connective tissue composed of elastin and collagen that surrounds the entire body from microscopic to macroscopic level, from the surface to the deep, without division. Fascia provides the connection and communication of all the structures of the body with each other and creates a continuous matrix. Elastin, which gives flexibility to the fascia, and collagen, which gives strength to the fascia, are present in the gelatinous intermediate of the fascia. Fascia; It is very rich in nerves, lymph nodes, water, mechanical and chemical receptors and blood vessels. A fascia that is healthy; It is in a soft and pliable form and allows muscle fibers to stretch and contract¹.

In recent years, it is known that myofascial relaxation exercises have become frequently used in the field of sports for both warming up and post-activity relaxation². Myofascial release technique; It is explained as a pressure application that allows the tissue to heal by dissolving the scar tissue adhesions, relieving the stretched and shortened muscles, removing waste materials such as lactic acid from the muscles and accelerating the blood flow on the injured tissue³. This technique is costly, time consuming and requires a skilled clinician⁴. Therefore, the application of self-myofascial release exercises has become increasingly important.

Foam roller is a widely used tool for the application of self-myofascial release. Foam roller tool is an ideal method that can be applied by the individual himself. In this method, the individual uses body weight to apply pressure to soft tissues during the rolling motion⁵. Foam Roller is available in different forms in terms of size, texture and shape⁶. Foam roller tool and its mechanism of action have become popular around the world in recent years and show itself as one of the exercise trends of athletes⁷. In this context, many studies have been conducted to examine the self-myofascial release method and the effectiveness of foam roller has been tried to be determined.

It is known that with the self-myofascial release technique, scar tissue and adhesions decrease, blood flow velocity increases, and tension and pain caused by edema and spasm in muscle

fibers are reduced⁸. There is also evidence showing that these tools can increase the range of motion⁹ and the recovery process by reducing the effects of acute muscle soreness¹⁰, delayed muscle soreness¹¹ and post-exercise muscle performance.

Although many postgraduate thesis studies have been conducted in the field of sports sciences in Turkey^{12-16,19,20}, no content analysis or compilation research has been found on foam rollers.

Aim of the study: The aim of the research is to examine the researches on foam roller in the postgraduate theses published in the field of sports sciences in Turkey.

MATERIAL AND METHODS

Research model: In the literature, review studies are generally examined by three different methods: systematic review, traditional review and meta-analysis^{17,21}. This research was designed using the systematic review method.

The systematic review consists of synthesizing the findings obtained from the studies included in the research by examining all the studies published in the relevant field within the framework of various inclusion and exclusion criteria in order to answer a question or find a solution to a problem^{18,22,23}.

Inclusion criteria for the study were determined as having a postgraduate thesis published in the field of Sports Sciences in Turkey and a research on foam rollers. Exclusion criteria from the study were determined as no unpublished postgraduate thesis in the field of Sports Sciences in Turkey and no research on foam rollers.

Scanning Strategy and data collection: Between 01.03.2022 and 02.04.2022, a total of 17 theses were reached as a result of the search made by searching the keywords "foam Rolling, foam roller, foam roller" in Turkish-English languages by filtering with the word "Sport" on the database of the National Thesis Center. As a result of the first evaluation made within the framework of the inclusion criteria, it was determined that 5 theses were outside the field of sports sciences and 2 theses were found in the previous

scan, and this thesis was not included in the research. Within the scope of inclusion criteria, it was determined that there were 9 postgraduate theses and these theses were included in the research and the data of the research were obtained (Figure 1).

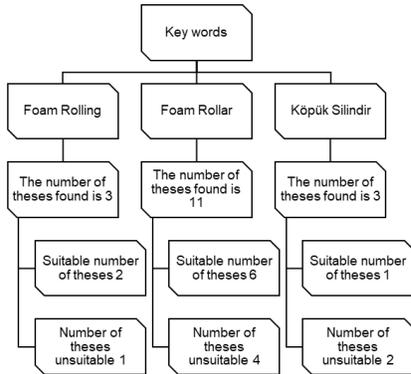


Figure 1: Number of theses reached within the scope of the research

RESULTS

When the theses included in the study were examined in terms of their levels, it was determined that all theses were at the master's level and there were no theses at the doctoral level (Figure 2).

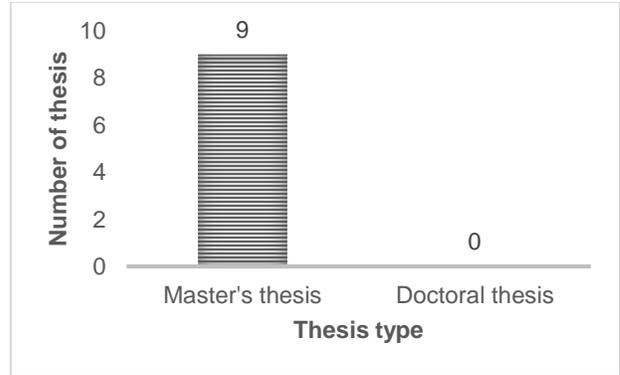


Figure 2: Types of theses

When the number of publications of the theses published according to the years is examined, it is seen that only the last four years have made researches on the relevant subject. It is seen that one thesis was published in 2018, two theses in 2019, three theses in 2020 and three theses in 2021 (Figure 3).

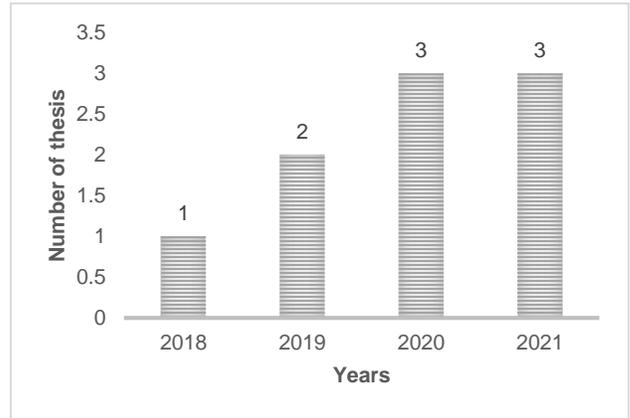


Figure 3: Number of published theses by years

The findings obtained from the postgraduate theses published in the field of sports sciences reached within the scope of this research are given in Table 1.

Table 1: Findings Obtained from Postgraduate Theses Published in the Field of Sport Sciences

1	Participant Group	13 male football players
	Aim	The effect of passive resting and applied foam roller exercises during the halftime of the football match on sportive performance and rest in the second half was examined.
2	Participant Group	19 taekwondo players
	Aim	The acute effects of foam roller exercises applied to the lower and upper extremities in taekwondo players on joint range of motion and vertical jump performance were investigated.
3	Participant Group	27 Taekwondo players
	Aim	During the repeated kick test of taekwondo athletes, the effects of foam roller technique and passive resting methods on kick performance between each set were investigated.
4	Participant Group	21 male football players
	Aim	To examine the effect of self-myofascial release using foam roller after delayed muscle pain in football players.
5	Participant Group	27 athletes whose branches are not specified
	Aim	It was conducted to determine the effect of acute foam roller and massage gun application on rectus femoris muscle stiffness.
6	Participant Group	39 athletes whose branches are not specified
	Aim	In this study, the effect of foam roller exercises applied in different times and sets on muscle flexibility and anaerobic performance was investigated.
7	Participant Group	16 male alpine skiers
	Aim	This study was carried out to examine the effects of acute foam roller exercises applied in addition to warming up on the performance of elite alpine skiers.
8	Participant Group	30 swimmers
	Aim	In this study, it is aimed to examine the effect of foam roller application on flexibility and swimming performance.
9	Participant Group	20 athletes whose branches are not specified
	Aim	The effects of self-myofascial release with Foam Roller and full rest methods on hamstring muscle group strength were investigated.
	Conclusion	Self-myofascial release with Foam Roller is more effective on strength performance than complete rest.

CONCLUSION

When the findings of the research were evaluated, it was determined that the thesis research on foam roller, which was the

subject of postgraduate theses, started in 2018. It has been determined that all the theses about foam roller, which is a fairly new subject in thesis research, are at the master's level. On the

other hand, it is thought that the topic of foam roles in thesis research will increase the popularity of foam roles.

In the content analysis, it was determined that the effects of foam roller on sportive performance parameters and also on recovery after exercise were frequently investigated. In addition to examining the difference between passive resting and foam roller applications after exercise, it has been determined that there are studies that compare foam roller and other materials such as massage gun.

When the studies on foam roller were examined in terms of sample groups, it was determined that they were composed of sportsmen such as taekwondo, football, swimming and skiing. In addition to this, it was determined that it was also studied with groups of athletes whose branches were not specified. In this context, it is recommended to conduct thesis researches consisting of athletes from other branches.

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