The Benefits to Static Stretching: A Systematic Review

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Abstract

Hamstring flexibility is defined as the ability to move muscles and joints through a full range of motion (ROM). An athlete's flexibility is important because it is used to improve on performance, posture, efficient movement, prevent incorrect body alignment, maintain appropriate muscle length and balance and decrease injury risk in the sport the athlete is performing in (Nguyen & Chassay). I searched the literature on the benefits of static stretching on hamstring flexibility and how other modalities such as ice, and massage can increase the flexibility of the hamstring. I also looked into how including the Pilates method to the athletes regime will help with strengthening the hamstring and keeping the flexibility. The databases searched were PubMed, Google Scholar, and Sport Discus. Additional publications were identified by looking at the references list included articles and by using the "find similar articles" function on PubMed. The literature was searched until November 5, 2021 and publications were selected between 1990 and 2021. Main findings included the following: using static stretching as a warm-up, using static stretching with ice, using it with massage and improving hamstring flexibility using the Pilates method. Using static stretching as a warm-up showed that it will help with lengthening the muscles and providing comfort to athletes for any soreness or tightness they might be feeling prior to practice and competitions. Including static stretching with ice provides the athlete with a soothing effect to alleviate any pain or inflammation the athlete may be feeling during the stretching. With ice it was shown that the athlete was able to endure static stretching because of the numbing effect it has. Static stretching and massage showed how this technique can help the hamstring calm down by using pressure, friction, and rubbing to relax the muscle. These techniques also helped with decreasing inflammation and increased the flexibility of the hamstring. The Pilates method showed how using this strengthening technique can promote strength, stability, and flexibility while using the athlete's body weight. Including a Pilates regimen to the athletes work out will help increase the range of motion of the joints which in turn will help maintain flexibility of the hamstring.

Purpose

The objective of this systematic review is to report the benefits of static stretching on athletes and how to strengthen the hamstring to prevent hamstring injuries. This report will include modalities that can help increase flexibility such as ice, massage, static stretching and dynamic stretching and the usage of the Pilates method to strengthening hamstring Flexibility.

Keywords: Hamstring Flexibility, Massage, Ice, Static Stretching, Pilates Method

Methods & Results

Identifying Relevant Publications

A systematic literature search using PubMed, Sport Discus, and Google scholar were conducted to obtain articles that focus on static stretching on the hamstring and strengthening the hamstring muscles. Terms used in the search include "hamstring flexibility", "static stretching", "hamstring injuries", "Pilates method", and "hamstring injuries". This left 924 articles left for further review. The criteria was then refined to only include English articles and published between 1990-2020. Case studies, research articles, narrative reviews were included in the search. After further review 12 articles were selected that fit the criteria of this report.

Dia, T. (2021). Do You Stretch Correctly. photograph.

Assessing Study Quality

To identify compatible studies, the reviewer (Landrum) evaluated the titles and abstracts sections. Following the inclusion criteria to evaluate the quality, The reviewer was able to collect the articles used in the systematic review. To ensure the selection process was not bias, the reviewer was blind to key components such as journal titles, authors, results and discussion sections.

Figure 1: Dia, T. (2021). Do You Stretch Correctly. photograph. https://therapydiaportland.com/physical-therapy-team/

Discussion

This systematic review is intended to report the benefits of static stretching on athletes as well as show to how strengthen the hamstring muscle group to prevent injuries in the future. Hamstring injuries are common in most sports due to the athletes sprinting and running. In order to prevent these injuries from happening the athlete need to properly warm-up the muscles. Using a static stretch as a warm-up helps with lengthening the muscles and stretching out any soreness the athlete may be feeling prior to practice. It is shown through research that including static stretching can warm-up and static stretching increased range of motion and decreased injury in the athletes. The research also showed that static stretching loading had a significant effect on increasing in the knee extension range of motion and decreased in the muscle-tendon unit stiffness of the hamstring. With increasing the hamstring flexibility the athlete is able to keep posture and prevent any compromising factors with tight hamstrings. Including ice and massage to static stretching also showed that it can decrease the inflammation of the hamstring if there is any. With including these modalities the athlete is able to withstand the pain if they feel pain during a static stretch.

In order to keep the flexibility of hamstring one must also strengthen the muscle as well. The Pilates method uses different techniques along with the athlete's body weight and resistance spring that can target the muscles differently. When looking at the research it showed that the Pilates method showed that just over two weeks the athlete's saw improvement in hamstring flexibility.

Conclusion

The research to obtain relevant studies was a challenge due to the fact that there was very little positive articles in regards to static stretching. Once the correct articles that fit the criteria for the systematic review it was easy to interpret the information to writing this review. Static stretching is beneficial for the athlete to use because it helps improve flexibility and posture of an athlete as well as help with prevention of hamstring injuries. Not only should static stretching should be included in the athlete regimen but a strengthening program such as Pilates should also be included. The Pilates method works on both strength and flexibility which in turn helps the athlete become stronger.

References (selected)

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