

Foam Rolling versus Stretching for Muscle Flexibility

Foam rolling has been proposed to improve muscle function, performance, and joint range of motion (ROM). However, whether a foam rolling protocol can be adopted as a warm-up to improve flexibility and muscle strength is unclear. To examine and compare the acute effects of foam rolling, static

stretching, and dynamic stretching used as part of warm-up on flexibility and muscle strength of knee flexion and extension. A total of 15 male and 15 female college students (age 21.43 ± 1.48 y, weight

65.13 ± 12.29 kg, height 166.90 ± 6.99 cm) were recruited into a crossover study design in which three interventions of static stretching, dynamic stretching and foam rolling were performed by all participants in random order on 3 days separated by 48-72 hours. The effects of these three different warm-ups were compared by measuring the ability of a knee extension to move the same weight at maximum possible speed and strength. This test called the isokinetic peak torque was measured during knee extension and flexion at an angular velocity of $60^\circ/\text{second}$. The flexibility of the quadriceps muscle was assessed by a standardized test called the modified Thomas test, while flexibility of hamstrings was assessed using the sit-and-reach test.

The flexibility test scores improved significantly more after foam rolling as compared to static and dynamic stretching. With regard to muscle strength, only knee extension peak torque (pre vs. post intervention) improved significantly after the dynamic stretching and foam rolling, but not after static stretching. Knee flexion peak torque remained unchanged. Foam rolling is more effective than static and dynamic stretching in acutely increasing flexibility of the quadriceps and hamstrings without hampering

muscle strength, and may be recommended as part of a warm-up in healthy young adults.

Comment: While this is a small study it points out measurable benefits of foam rolling which is a popular practice before exercising. The rolling is supposed to break up fascia which is the thin connective tissue between muscles that you can see when you peel chicken breast between the muscle heads. The typical foam rolling movements in the legs are along the lateral surface called the "IT Band". In fact, there is no such structure, but rolling about ten times on each lateral surface will achieve the result. Be warned that the first few times you move on the foam roller you may encounter sharp pains until the fascia are loosened. Another rolling movement is on the anterior surface of the thighs called the "quadriceps roll". You can also roll the hamstrings while sitting up and propelling forward and back with your arms. The lateral chest can be rolled but you should lean slightly backwards and not roll too far down the ribs as the last two ribs will bend and cause muscle pain which can be severe. The upper back rolling is done lying flat with knees bent and using the legs to slowly propel forwards and backwards. If these

moves are difficult to visualize consult your trainer for a demonstration.

Su H, Chang NJ, Wu WL, Guo LY, Chu IH. Acute Effects of Foam Rolling, Static Stretching, and Dynamic Stretching During Warm-Ups on Muscular Flexibility and Strength in Young Adults. J Sport Rehabil. 2016 Oct 13:1-24.