

Are Foam Rollers for Muscle Massage Really Beneficial?

Laird Harrison | July 08, 2015

Is Self-Myofascial Release Beneficial?

Over recent years in gyms in the United States, foam rollers have sprouted like flowers in spring. Media reports have celebrated the use of these rollers and other aids for promoting a type of self-administered massage therapy called "self-myofascial release." This soft tissue therapy for the treatment of skeletal muscle immobility and pain purportedly soothes muscle soreness, increases range of motion, and even improves athletic performance.^[1,2]

Now scientists have begun to test these claims with controlled trials.

A recent review of the published literature^[3] and studies presented at the American College of Sports Medicine (ACSM) 62nd Annual Meeting in May^[4-6] challenge assertions about the increased performance benefits of self-myofascial release. But they do support self-myofascial release as way of improving range of motion.

"I think it's better as a recovery tool, and to prevent injury," says one of the ACSM presenters, Debra A. Stroiney, PhD, assistant professor of exercise science at Gannon University in Erie, Pennsylvania.

Self-Myofascial Release vs Massage Therapy

In self-myofascial release, people massage their own soft tissue. Researchers have supposed that this technique might produce some of the same benefits shown in myofascial release that is administered by physical therapists.

One theory is that fasciae tighten as a protective mechanism in response to trauma. Over time, collagen becomes more dense and fibrous, and elastin—a highly elastic protein in connective tissue—becomes less resilient. This can reduce muscle functioning and cause pain. Myofascial release, in this theory, whether self-administered or administered by someone trained in the technique, might reverse this process.^[7]

In addition, some research suggests that injury, disease, inactivity, and inflammation may cause fibrous adhesions to form in muscle tissue, also limiting its normal functioning. Myofascial release could break these adhesions.^[3]

Studies in myofascial release suggest that it can change a muscle's viscoelastic properties, increasing mitochondria biogenesis and blood flow. Other potential effects might include changes in tissue gene expression, limb circumference, circulating neutrophil counts, and improved mood.^[3]

Nine Studies With Mixed Results

The new research aims to discover whether self-myofascial release might have beneficial effects on athletic performance, injury prevention, or recovery.

Self-myofascial release takes two forms. In one, people lie on specially designed foam rollers or on small balls, including tennis balls, lacrosse balls, or balls specially designed for this purpose. They then manipulate their body weight to exert force on soft tissue. In the other form, individuals use a handheld roller to apply force on soft tissue using upper-body strength.

For the literature review, researchers at Ohio State University in Columbus found nine randomized controlled trials: six using foam rollers and three using handheld rollers. Their primary findings:

- Three studies showed a positive effect on vertical jump height or maximal force output, but three others showed no change in such measures of muscle performance.
- All five studies measuring range of motion showed an increase.
- All three studies measuring muscle soreness or fatigue showed an improvement.



None of the studies showed that self-myofascial release actually impaired performance. That's significant, because research into static stretching—where an athlete extends and holds a muscle in a position of mild discomfort—has suggested temporary decrements in neuromuscular performance. This finding suggests that self-myofascial release might provide a better warm-up option than traditional stretching exercises.^[3]

To amplify these findings, researchers presenting studies at the ACSM meeting looked at self-myofascial release from other perspectives.

Improved Aerobic Performance?

Dr Stroiney became interested in self-myofascial release when she was working at a running store while in graduate school. One of the store's products was the TriggerPoint™ Ultimate 6 Kit (TriggerPoint Performance; Durham, North Carolina) of rollers and balls. "They said if you do this before you run, it will improve your performance," Dr Stroiney recalls.

She decided to put this technique to the test.^[4] She instructed 16 male recreational runners to run for 40 minutes on a treadmill at 75% of their aerobic capacity (VO_2 peak). They ran once after resting for 20 minutes and once after using the rollers and balls to massage the following muscle groups: soleus, quadriceps, iliotibial band, iliopsoas, piriformis, and pectorals.

The men ran at 12.47 km/hour after resting and 12.57 km/hour after self-myofascial release. This difference was not statistically significant ($P > .05$).

Differences in blood lactate, heart rate, ventilatory efficiency, and rated perceived exertion also did not differ significantly between the two bouts.

Enhanced Anaerobic Power?

If self-myofascial release doesn't increase aerobic capacity, it might still increase anaerobic power. A team of researchers from the University of Wisconsin in Eau Claire presented findings that addressed this question at ACSM as well.^[5]

In their study, 19 college-aged men performed four Wingate tests, in which they pedaled as fast as they could for 30 seconds on an ergometer.

They completed one test after no self-myofascial release. They then completed one trial each after using foam rollers to massage their quadriceps, hamstrings, and iliotibial bands—as well as their hip abductor, gluteus maximus, hip flexor, and gastrocnemius muscle groups—for either 30 seconds, 60 seconds, or 90 seconds each.

There were no statistically significant differences in absolute power, relative peak power, minimum peak power, average power, or power drop in the four trials.

"Some previous studies saw an increase in power output with myofascial stretching," says lead author Aleksander

Hansen, a student at Wisconsin. "What we found is that it doesn't do anything."

But, he added, other studies have found encouraging results on range of motion.

Improved Range of Motion?

Researchers at DeSales University in Center Valley, Pennsylvania, expanded on the range-of-motion findings in another ACSM presentation.^[6] The previous studies focused on immediate improvements. The DeSales researchers wanted to know how long these effects lasted.

They coached 19 college students through dynamic stretching and then measured the students' performance in a modified sit-and-reach test. In this test, subjects sit on the floor with their legs straight in front of them and reach as far forward as possible.

The researchers assigned one group of students to massage themselves using foam rollers and another group to perform static stretching. Each group performed their routines three times a week for 4 weeks.

At the end of that time, both groups had increased the distance they could reach in the sit-and-reach test, but the changes were not significantly different between the two groups. Likewise, both groups adhered equally well to their routines.

Still, self-myofascial release may be worthwhile for some athletes, says lead author Jessica Watson, a student at DeSales. "It opens up new options for healthcare professionals to use," she believes.

If nothing else, the mechanism of self-myofascial release may differ from static stretching, releasing adhesions in the fascia rather than lengthening muscle fibers, she says.

"If someone is complaining of pain and tightness," she adds, "I would be more likely to recommend foam rolling."

References

1. Reynolds G. Ask Well: Do foam rollers aid workouts? New York Times. April 25, 2014. <http://well.blogs.nytimes.com/2014/04/25/ask-well-do-foam-rollers-aid-workouts/> Accessed June 25, 2015.
2. Logan L. Roll away injuries: benefits of using a foam roller. Competitor.com. February 6, 2014. http://running.competitor.com/2014/02/injury-prevention/roll-away-injuries_35211 Accessed June 25, 2015.
3. Schroeder AN, Best TM. Is self myofascial release an effective preexercise and recovery strategy? A literature review. *Curr Sports Med Rep*. 2015;14:200-208. [Abstract](#)
4. Stroiney D, Herrick S, Vitti S, Bossi J, Paolone V. The effects of an acute bout of self-myofascial release on the physiological parameters of running. Program and abstracts of the American College of Sports Medicine 2015 Annual Meeting; May 26-30, 2015; San Diego, California. Abstract 3473.
5. Hansen A, Janot J, Martenson A, et al. Dose-response relationship between myofascial release & anaerobic power output in active college-aged males. Program and abstracts of the American College of Sports Medicine 2015 Annual Meeting; May 26-30, 2015; San Diego, California. Abstract 1350.
6. Watson J, De Marco K, Kudrna R. Self myofascial release vs. static stretching in relation to effects in exercise adherence. American College of Sports Medicine 2015 Annual Meeting; May 26-30, 2015; San Diego, California. Abstract 2508.
7. Barnes MF. The basic science of myofascial release: morphologic change in connective tissue. *J Bodywork Mov Ther*. 1997;1:231-238.

Medscape Orthopedics © 2015 WebMD, LLC

Any views expressed above are the author's own and do not necessarily reflect the views of WebMD or Medscape.

Cite this article: Laird Harrison. Are Foam Rollers for Muscle Massage Really Beneficial? *Medscape*. Jul 08, 2015.