Research Review: Multilevel Rigid Roller VS Bio-foam Roller

Curran, P.F., Fiore, R.D., & Crisco, J.J. (2008). A comparison of the pressure exerted on soft tissue by 2 myofascial rollers. *Journal of Sports Rehabilitation, 17,* 432-442.

This research was performed primarily to measure the difference in pressure exerted by two foam rollers. It is well known and agreed upon that more pressure exerted will affect more layers of soft-tissue. There is often a need for both high-density and low-density rollers in practical application. Higher density may illicit more pain and discomfort than a lower density foam roller, and therefore may not be as practical for everyone. However, to achieve myofascial release it is important to consider the amount of pressure into the tissues. Few research studies have looked at how a foam rollers design changes the user's ability to treat restrictions in the deeper layers of myofascial. It is logical that the softer a tool, the more superficial that tool will work, however, it has not been determined that the surface makes a difference.

Therefore, in this study the researchers compared the pressure and contact area on the soft tissue of the lateral thigh and iliotibial band while participants performed foam rolling with 2 rollers made of different density and compressibility.

Participants

This study only had 10 college-aged participants, 5 women and 5 men. These participants had not had lower extremity injury or surgical procedures within the preceding 6 months of the study. The low number of participants is one of the studies limitations, because it likely does not adequately represent the foam rolling demographic. However, this is an adequate pilot study to begin to gather data on different densities of foam rollers.

Instrumentation

This study utilized two different foam rollers, one was a traditional bio-foam roll (BFR) that was provided by Perform Better and the other was the Multilevel Rigid Roller (MRR). The MRR was provided by Collins Sports Medicine from Raynham, MA. The BFR is a traditional foam roll, composed of a uniform polystyrene foam cylinder. The MRR is non-uniform hollow polyvinyl chloride cylinder enclosed in a layer of neoprene that was approximately ¼ of an inch thick. Pressure data was recorded by affixing sensors to each roller.

Procedure

Both the BFR and the MRR were randomly assigned to a leg, each participant rolled on both rollers. The rollers were used on opposite legs. Participants were instructed to roll from greater trochanter down the lateral thigh approximately 10 inches and return to the start position in 10 seconds. The same technique was used on both rollers.

Results

The MRR produced significantly more pressure on the soft tissue of the participant's lateral thigh than the conventional BFR.

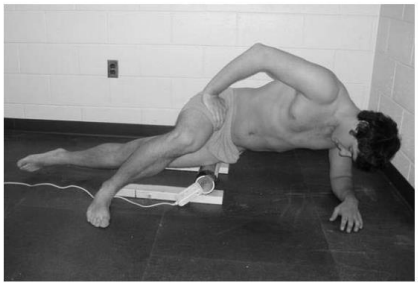


Figure 1 — Proper lateral thigh and iliotibial-band self-myofascial-release technique using the Multilevel rigid roller as described in the text.

Discussion

This study is of significance, because it is the first to demonstrate that the design of the roller does matter. There has been no previous study to investigate the difference between rollers, and very few studies after that compares different designs of rollers. There have been no studies that have identified the therapeutic effects of more pressure by a foam roller. However, there have been many studies that have investigated the effects of increased pressure during massage therapy and its influence on myofascial release. In addition, many therapists believe that deep, sustained pressure can help to increase muscle extensibility and tissue strength better than superficial pressure. The MRR will allow deeper penetration into the soft tissue than the BFR.

This study showed that roller design significantly affected the contact area between the roller and the soft tissue. With increased pressure and less deformity, the MRR enabled the subjects to isolate specific region of soft tissue. While the clinical effectiveness of this was not evaluated, it is thought that isolated compression will lead to better myofascial release, increased range -of-motion and other therapeutic benefits.

TriggerPoint Master Trainer

The Multi-Level Rigid Roller has a similar design to the TriggerPoint GRID. The GRID has three different designs on the surface and is made of similar density. In addition, the reinforced PVC decreases the deformity of the roller. This will increase the rollers longevity and ensure a consistent density overtime. Each GRID pattern is made with the same density. However, the patterns have different surface areas. Therefore, when rolling over the GRID there will be a different amount of pressure exerted on the body with each pattern. While the variance is small and often times cannot be felt, there will be a different stimulation of blood flow and thus better results. This is evident in the GRID pattern that may be left on the skin after rolling. With similar characteristics, the GRID can be considered and referred to as a multi-level rigid roller.

Currently two studies are underway using the TriggerPoint GRID, one is comparing to a traditional roller and one is measuring the effectiveness of TriggerPoint Programming. Once this data becomes available, more will be known about the actual effects of the GRID.

