THE THERAPY CORNER

Compression Stockings – Part II

The most recent entry in this series addressed the question of whether two popular measures used by runners to decrease after-running soreness and improve performance actually work. I focused mostly on the use of ice baths after workouts and races, but also briefly touched on the use of compression garments. I'd like to now expand on that latter topic, as a newer study has recently been published that more fully examines the supposed benefits of wearing such clothing.

In this newest paper[i], researchers first note that almost all previous investigations on this topic tested runners at distances up to 15k. The degree of muscle damage sustained from this is minimal and difficult to quantify accurately, so in this latest study investigators had two groups of runners – one wearing compression stockings and one without – participate in a competitive marathon. Runners in both groups were "matched" for abilities so that improvements (or diminished times), if any, could be statistically calculated with some degree of precision.

As in most studies that preceded this one, investigators found no improvements in performance between the two groups. They did find a difference in perceived leg soreness 24 hours after the race (those who wore compression stockings had less), but after 48 hours there was no difference.

What made this study particularly interesting was that it looked at some objective measures that would indicate that the stockings had a physiological effect that would explain any subjective reports of improvements by the runners. Specifically, they examined certain markers found in blood that are associated with muscle fiber damage. Theoretically (according to the manufacturers of these garments), we would expect that there would be less damage in those runners who wore the stockings than in those who do not, based on the premise that compression reduces vibration in the muscles of the leg during the initial contact (foot landing) phase of gait, as well decreasing muscle oscillations during prolonged running.

The study's authors found, however, that was no difference in the levels of these markers (myoglobin, creatine kinase, and LDH concentrations) in the two groups either before or after the race. These markers increased during the race in both groups in essentially equal amounts.

Two other objective measurements the authors took were of changes in lower-leg volume changes (decreased in both groups) and mean jump height changes (again, no significant difference in the decrease between groups) after the race. (I can't even imagine trying to jump after a marathon – my measurement would probably be in the negative category!)

What makes this study more compelling is that for the first time, investigators tested the effectiveness of compression stockings during a real running competition, as opposed to an artificial laboratory (treadmill) setting and moreover, at a distance (marathon) more likely to produce the physiological changes associated with reduced performance and post-race soreness. Their conclusion is similar to

most of the studies that preceded it: compression stockings provide no significant benefit to runners with respect to either of these two goals.

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[i] *The Use of Compression Stockings During a Marathon Competition to Reduce Exercise-Induced Muscle Damage: Are They Really Useful?* Journal of Orthopedic and Sports Physical Therapy, June 2015