

The effect of myofascial trigger points treatment on muscle elasticity, strength and function

Anastasios Efstratiadis, G Ploutarchou, E Lazoura and P Georgiadou

European University of Cyprus, Cyprus

Introduction: The appearance of Myofascial Trigger Points (MTrPs) on human body can cause variety of changes, such as inflexibility, loss of strength and dysfunction of the intramuscular mobility. MTrPs are separated in active and latent MTrPs and they can be created by many direct and indirect causes. Therefore, each MTrPs category creates specific symptomatology and it can affect in different ways the daily life of the human body. Thereby MTrPs can be treated with different interventions, which namely present different action mechanism but all of them have similar results.

A multitude of therapies have been proposed to eliminate MTrP. Manual therapeutic approaches such as ischaemic compression or myofascial release represent the modalities applied most often [10,12]. Throughout the past years, self-massage with rigid foam rollers and other small handheld tools (self-myofascial release, SMR) has evolved. It claims to mimic the effects of manual therapy and massage and can be performed in a home-based setting. While it is unclear as to whether SMR primarily affects the muscle or the connective tissue (i.e., the deep fascia), a variety of treatment effects have been described: Besides increasing range of motion and accelerating regeneration after sports activities it is suggested to reduce trigger point pain. However, the latter assumption has not been investigated so far []. The present study, therefore, aimed to examine a) whether self-myofascial release using a foam roll is effective in reducing latent MTrP sensitivity and b) which technique, static or dynamic application, is superior in this context

Purpose: The purpose of the review is to illustrate through the contemporary arthrography the effect of the different ways of treating MTrPs and whether the treatment of the points affects the elasticity, strength and function of the muscles.

Method: The review was primarily based on clinical trials or randomized clinical trials that were conducted over the last five years to validate existing knowledge. For the computer search, online databases of PubMed and Google Scholar were used to retrieve articles. Studies that used children, elderly and animals were excluded. A single-blind, randomized, placebo-controlled, parallel group study was conducted comparing a) static compression of a latent MTrP with a foam roller, b) dynamic foam rolling over a latent MTrP, and c) placebo laser acupuncture of a muscle afflicted with a latent MTrP. It was hypothesized that condition a) would be superior to the other interventions with regard to the reduction of pressure pain sensitivity, assessed by means of algometry.

Healthy, pain-free individuals aged 18 to 40 years with latent myofascial trigger points in the lateral gastrocnemius muscle were included in the present study. Recruitment was conducted through poster advertising and by word of mouth. Exclusion criteria were as follows: (1) severe cardiovascular, pulmonary,

neurological, psychiatric or inflammatory rheumatic diseases, (2) specific orthopaedic diseases, e.g. radicular symptoms, myofascial pain syndrome (characterized by presence of active trigger points) or other chronic pain syndromes, (3) analgesic intake in past 48 hours, and (4) history of surgery in the lower extremity.

Results: Dry Needling seems to reduce the level of pain and hypersensitivity. Moreover, the effects of this treatment over the short term appear to be long-term. Shockwave therapy has significant results (1500 pulse, 2 times per week), may help reduce MTrPs and in the long run can reduce pain and increase the range of motion. Therapeutic ultrasound (3 Hz, 0.132 w/cm², 4 h) can be applied at local MTrPs with successful pain reduction, but this success seems to be as effective as placebo treatment. Ischemic pressure reduces local pain levels while increasing the range of motion of the involved joints. It is important to note that the effects of ischemic pressure are not only short-term; however, it has long-term results as well. The Ergon-IASTM technique of peritoneal release seems to be an effective tool for pain management and treatment of MTrPs, because after their application they appear to reduce pain levels and increase the range of motion. The same results appear to be with the application of a roller (Foam Roller).

Conclusion: Several ways of managing MTrPs have emerged from time to time, However, through contemporary articles; the most effective tools are Dry Needling, shockwave, Ischemic Pressure, ERGON and Foam Roller. More studies of high methodological quality are needed in the future to examine the most effective form of treatment.

In contrast to static application, which appears to slightly decrease MTrP pain, we found no change of MTrP sensitivity in dynamic foam rolling. As the participants self-massaged the whole lateral gastrocnemius muscle, it might be assumed that this approach does not provide sufficient direct compression of the MTrP. Hence, if athletes intend to treat myofascial pain conditions or aim to reduce MTrP-related impairments of muscle function, static compression with a foam roller may be the only potentially effective treatment.

References-

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