INPLASY

Corresponding author:
Qi Yang

349827707@qq.com

Author Affiliation:
None declared.

Chronic Effects of Self-Myofascial Release on Athletes' Performance A Systematic Review

Yang, Q; Pan, XY.

ADMINISTRATIVE INFORMATION

Support - No.

Review Stage at time of this submission - Data analysis.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 11 February 2025 and was last updated on 11 February 2025.

INTRODUCTION

*R*eview question / Objective Chronic effects of self-fascial release on athletes' physical and skill performanceChronic Effects of Self-Myofascial Release on Athletes' Performance A Systematic Review.

Rationale Regarding long-term (i.e., chronic/ training) stretch training and its various methods (e.g., static stretching), chronic increases in ROM are regularly reported . With regard to performance parameters, some studies report no changes following long-term stretch training, whilst others report an increase in performance . However, when considering the long-term effects of FR, much less is known.

Condition being studied SMR does not require a masseur or other similar personnel and allows individuals to self-treat at a convenient time, so it is widely used by exercisers of all ages and abilities.

METHODS

Search strategy The studies were identified by searching the following electronic databases: MEDLINE (PubMed), Web of Science (WOS), Scopus , and EBSCO SPORTDiscus.The following Boolean operators were used following the PICO strategy for the methodological reliability of the search: ("foam rolling" OR "Self-Myofascial Release" OR "roller massage" OR "foam roller" OR "massage tool") AND ("performance" OR "skill" OR "physical" OR "fitness" OR "delayed onset muscle soreness" OR "Range of motion" OR "flexibility" OR "strength" OR "muscle activation" OR "power" OR "force" OR "agility" OR "speed" OR "endurance").

Participant or population (1) The subjects had to engage in sports practice for more than or equal to five hours a week. (2) The subjects had to have been involved in one or more competitive sports disciplines for at least six months or equivalent in training hours. (3) The studies had to measure the effect of SMR in one or more functional physical-

sports performance-related factors. (4) The subjects had to use an SMR instrument to demonstrate the respective effects in each intervention. (5) Articles had to compare the effects of SMR/FR using two or more groups with different protocols (including a control group or at least one group without SMR/FR).

Intervention Intervention using self-fascial release over a four-week period.

Comparator The control group was not restricted to any intervention method.

Study designs to be included Randomized controlled trials and non-randomized controlled trials.

Eligibility criteria (1) The subjects had to engage in sports practice for more than or equal to five hours a week. (2) The subjects had to have been involved in one or more competitive sports disciplines for at least six months or equivalent in training hours. (3) The studies had to measure the effect of SMR in one or more functional physical-sports performance-related factors. (4) The subjects had to use an SMR instrument to demonstrate the respective effects in each intervention. (5) Articles had to compare the effects of SMR/FR using two or more groups with different protocols (including a control group or at least one group without SMR/FR).

Information sources From the selected studies, the folloS: score; 1. The selection criteria were specified; 2. The subjects were randomised to the groups (in a cross-study, the subjects were randomly distributed as they received the treatments); 3. The assignment was hidden; 4. The groups were similar at the beginning in relation to the most important prognostic indicators; 5. All subjects were blinded; 6. All therapists who administered the therapy were blinded; 7. All evaluators who measured at least one key result were blinded; 8. The measurements of at least one of the key results were obtained from more than 85% of the subjects; 9. Initially assigned to the groups, and results were presented from all subjects who received treatment or were assigned to the control group, or when this could not be achieved, the data for at least one key result were analysed for "intention to treat"; 10. The results of statistical comparisons between groups were reported for at least one key result; 11. The study provides specific measures and variability for at least one key result.wing data were extracted from each article: study objective, group of participants, type of intervention, methods, measurement, and main results or highlights. For the qualification of the results of each study, and in order to homogenise the findings as much as possible, the significance levels (p-value) are given in the results section for a more functional comparison. Information on the mean and standard deviation is also provided in the text, where possible.

Main outcome(s) n the 11 studies that met the inclusion criteria for this review, a total of 375 athletes (237 men, 138 women) were counted, with an age range between 15 and 35 years. Due to the methodological diversity of each study included in this systematic review their general characteristics are listed in Table 2. This includes the type of design of each study, a brief description of the subjects specifying the number of people involved in each study, their respective genders, the sports experience counted in years and level of sports competition, the regions of the body intervened, and, finally, a description of the interventions performed and the total number of sessions recorded.

Quality assessment / Risk of bias analysis To evaluate the quality of the studies, the PEDro scale [52] was used based mainly on the independent consensus by the authors: LMMA and MSM. This tool allows one to quickly identify which of the randomised trials may have sufficient internal validity and statistical information to make its results interpretable. The scale is composed of 11 criteria, and one point is awarded for each criterion clearly met. According to the scale, after applying the inclusion and exclusion criteria, all the selected articles obtained a score of 6 or higher and were accepted in this review.

Strategy of data synthesis From the selected studies, the folloS: score; 1. The selection criteria were specified; 2. The subjects were randomised to the groups (in a cross-study, the subjects were randomly distributed as they received the treatments); 3. The assignment was hidden; 4. The groups were similar at the beginning in relation to the most important prognostic indicators; 5. All subjects were blinded; 6. All therapists who administered the therapy were blinded; 7. All evaluators who measured at least one key result were blinded; 8. The measurements of at least one of the key results were obtained from more than 85% of the subjects; 9. Initially assigned to the groups, and results were presented from all subjects who received treatment or were assigned to the control group, or when this could not be achieved, the data for at least one key result were analysed for "intention to treat"; 10. The results of statistical comparisons between groups were

reported for at least one key result; 11. The study provides specific measures and variability for at least one key result.wing data were extracted from each article: study objective, group of participants, type of intervention, methods, measurement, and main results or highlights. For the qualification of the results of each study, and in order to homogenise the findings as much as possible, the significance levels (p-value) are given in the results section for a more functional comparison. Information on the mean and standard deviation is also provided in the text, where possible.

Subgroup analysis To facilitate the reader's understanding of the studies, the main results obtained are subdivided into categories related to the performance variables that each intervention protocol focused on. These variables include flexibility/mobility, strength, speed, agility, or the perception of effort and recovery.

Sensitivity analysis The PRISMA methodology was used, consisting of a list of 13 items [64] and a four-phase flow chart [65] (Figure 1). A total of 1391 articles were initially identified through the databases and 2 additional records were found in other sources. After deleting the duplicate articles and carefully reading the abstracts, 769 articles were selected, of which 715 were chosen after reading the full text. Then, 504 articles were excluded for not meeting the inclusion/exclusion criteria. Finally, 13 studies were included in this systematic review.

Country(ies) involved China, Malaysia.

Keywords Self-Myofascial Release, Athletes, Performance, Chronic Effects.

Contributions of each author
Author 1 - Qi Yang.
Email: 349827707@qq.com
Author 2 - Xiaoyang Pan.