

THE COMPARISON BETWEEN MANUAL TRIGGER POINT AND DRY NEEDLING IN TREATING UPPER AND MIDDLE BACK MYOFASCIAL PAIN SYNDROME IN SPORT PLAYERS

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INTRODUCTION

Myofascial pain is usually diagnosed by the specific presence of at least one myofascial trigger point (MTrPs) that can be defined as a hyperirritable point on the surface of a tense band located on the muscle fibers [1].

Myofascial pain syndrome in the upper and middle back is a very common dysfunction in clinics whose patients have a wide variety of occupations (office workers, athletes, etc.). There are many situations in which a myofascial pain syndrome located in the neck or back area can be caused by a large volume of favorable factors, such as: inadequate posture, lack of balance in the agonist-antagonist relationship, abnormal movements ignored or treated improperly and so on [2].

Dry Needling is a form of treatment of trigger points by precisely stimulating it with a specially designed needle. Dry needling is a very effective form of treatment for muscles and fascia, where the physiotherapist or doctor inserts the needle in the trigger point thus stimulating the oxygen supply of tense muscle fibers and fascia. At the same time this procedure decreases the inflammatory reaction, improves blood flow and permanently eliminates tension in the muscle fiber. By stimulating the trigger points, the muscle fiber reacts with a local reflex, releasing the accumulated tension. There are several types of Dry Needling: Dynamic, Static, Intramuscular Electrical Stimulation.

Manual Trigger Point is the manual approach of treatment for inactivating these points. There are two ways to approach manual treatment. Direct: when ischemic pressure is exerted directly on the trigger point, or an indirect approach when opting for fascial techniques that address a much larger area or the entire muscle.

OBJECTIVES

The purpose of the current study is to identify the short-term effects of the different approaches in the treatment of the upper back myofascial pain: manual trigger point and dry needling therapy.

MATERIAL AND METHODS

Eighteen professional male and female sport players in the age range of 19 to 33 years old, having the primary criteria for selection an active myofascial pain located in the upper back area, were the subjects of the research (Table 1).

Table 1. Subjects of the research

Variable (unit)	Group A (n=9)	Group B (n=9)
Age (years)	26.08±4.52	27.82±3.95
Weight (kg)	75.60±7.62	76.70±8.35
Height (cm)	178.30±7.48	177.40±6.94

Functional diagnose had been indicated according to the physical evaluation, visual examination, palpation and muscle active testing. Other inclusion criterias consisted of: being involved in at least one active professional or semi-professional sport competition/league in the last thirty-fourty five days (football, tennis, swimming, running, etc.); fully agreement of the subjects related to the acceptance of dry needling therapy; lack of basic contraindications in safe dry needling therapy (needly phobia, mental illness, lymphedema, infectious diseases, other medical emergencies, etc.); having a treatment which is not combining other therapies, with the exception of physical exercises or main recovery methods after training.

Subjects of the research were structured in two equal groups, following a therapeutic plan based on manual therapy techniques (deep tissue massage and manual trigger point) for group A and dry needling techniques (including maximum 10-15 minutes of manual therapy) for group B.

Main muscles included in the therapy were: Infraspinus, Subscapularis, Trapezius, Levator Scapulae, Supraspinatus, Teres Minor, Teres Major and Latissimus Dorsi.

For the dry needling therapy patients were asked to lie in a prone position with the arms next to the body. Dry needling was performed using Seirin B type needles: No.8 (0.30) x 30mm and No.8 (0.30) x 50mm.

Dry needling can be a very effective therapy in the management of myofascial pain syndrome located in the upper back, but it is required to focus attention to the anatomical considerations and precautions of the area, being considered a

minimally invasive method. The main caution methods around the rib cage involve the avoidance performing dry needling with the risk of injuring other anatomical structures such as the pleura, lungs, nerves and blood vessels.

Numeric Pain Rating Scale (NPRS) had been used to assess the level of the pain during palpation. Every patient had to evaluate on the 11-point numeric scale which ranges from 0 (no pain) to 10 (worst pain imaginable). This indicator had been used for both groups in the baseline and after three physiotherapy sessions.

RESULTS

Table 2. NPRS scale values for group A and group B.

Variables	Group	N	Average (initial)	Average (after the 3rd session)	Correlation	p Value
NPRS	A	9	6.66	2.77	-0.25	0.516
NPRS	B	9	6.77	2.22	0.849	0.004

Table 2 shows the results of the paired-samples t-test, which tested the difference between the initial and final measurements of both groups. Based on the results (mean, correlation value and p value), it can be concluded that both groups benefited from effective therapy sessions. Statistically significant differences were identified, especially for group B values (p value = 0.04 < 0.05).

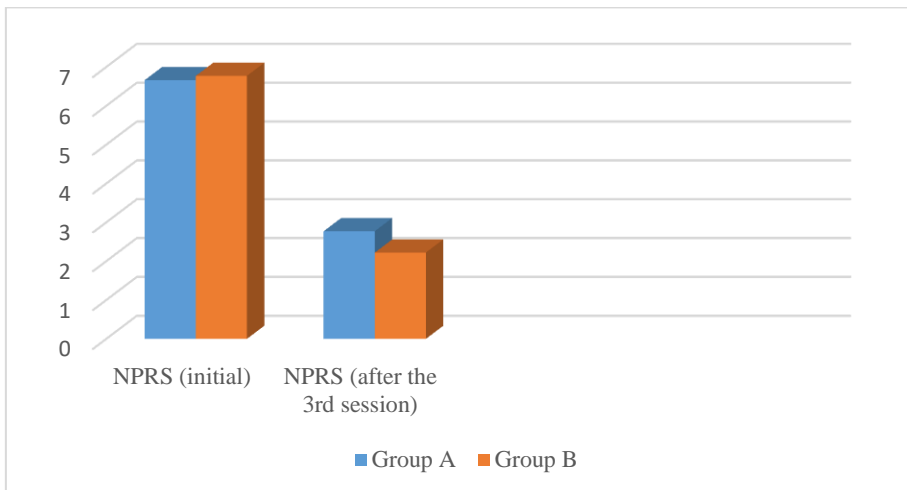


Fig 1. NPRS score values after initial assessment and after the third physiotherapy session

The group of subjects contains homogeneous initial values for NPRS, which is a good advantage for the research objectives. Fig 1 is a significant tool for a better understanding of the initial and final results of NPRS evaluations.

Table 3 contains the results of the t test (independent samples test) at the final evaluation for both research groups. Important elements are evaluated by mean, standard deviation (SD), value of t (between groups) and value of p (between groups). The NPRS score shows a significant progress for both groups of subjects, with a significant difference for group B (mean value 2.22), determined by $p = 0.13 < 0.05$.

CONCLUSIONS

Both medical recovery protocols have been shown to be effective in the short-term treatment of myofascial pain in the upper and middle back in athletes.

Based on the average of the data obtained, the treatment received by the subjects in group B proved to be more effective compared to that specific to the subjects in group A, with evidence of a statistically significant difference.

The benefits of manual therapy and dry needling therapy are the result of the technique applied by the physiotherapist and due to the best choosing of the best option for the recovery protocol.

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