

# Effect of the Dry Needling vs Manual Myofascial Therapy at the trigger points in Temporomandibular Dysfunction.



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## Background

The etiology of Temporomandibular Dysfunction (TMD) is multidimensional, considering biomechanical, neuromuscular and biopsychosocial<sup>1,3</sup>. TMDs are defined in subgroups covering problems involving temporomandibular joint (TMJ), masticatory system muscles, and musculoskeletal structures associated with the head and neck<sup>1,3</sup>. The most relevant signs of TMD are the presence of joint sounds (clicking and crepitation), reduced mouth opening, and disrupted jaw movements. However, pain is the primary problem of this pathology, and it is typically the reason these patients request medical care<sup>1,4</sup>. The muscular etiology TMD includes the myofascial pain syndrome, which is characterized by the presence of trigger points (TP). The intervention of physical therapy in TP involves myofascial manual therapy and dry needling<sup>1,2,4,5</sup>.

## Objective

The propose of this study is to investigate the effect of physiotherapy technique for the treatment of muscular TMD by applying manual myofascial therapy and dry needling.

## Methods

This is a quasi-experimental study that envelops a group of 15 individuals with a diagnosis of TMD having selected the sample through the questionnaire of Diagnostic Criteria for Research in Temporomandibular Dysfunction (RDC/TMD) and the Fonseca questionnaire, in which they have at least level II of severity. The subjects were randomized to two groups: group one (G1) will be submitted to myofascial manual therapy and group two (G2) will be submitted to dry needling. At stage 0 the subjects had the pressure pain threshold (PPT) and pain intensity (VAS) evaluated. The following subjects were submitted to one physiotherapy session, having been reevaluated after an hour. The subjects were submitted to one physiotherapy session, and have been reevaluated.

This study follows all the principles of the Declaration of Helsinki.



Image 1: Myofascial manual therapy in the masseter (a) and temporal (b) muscle

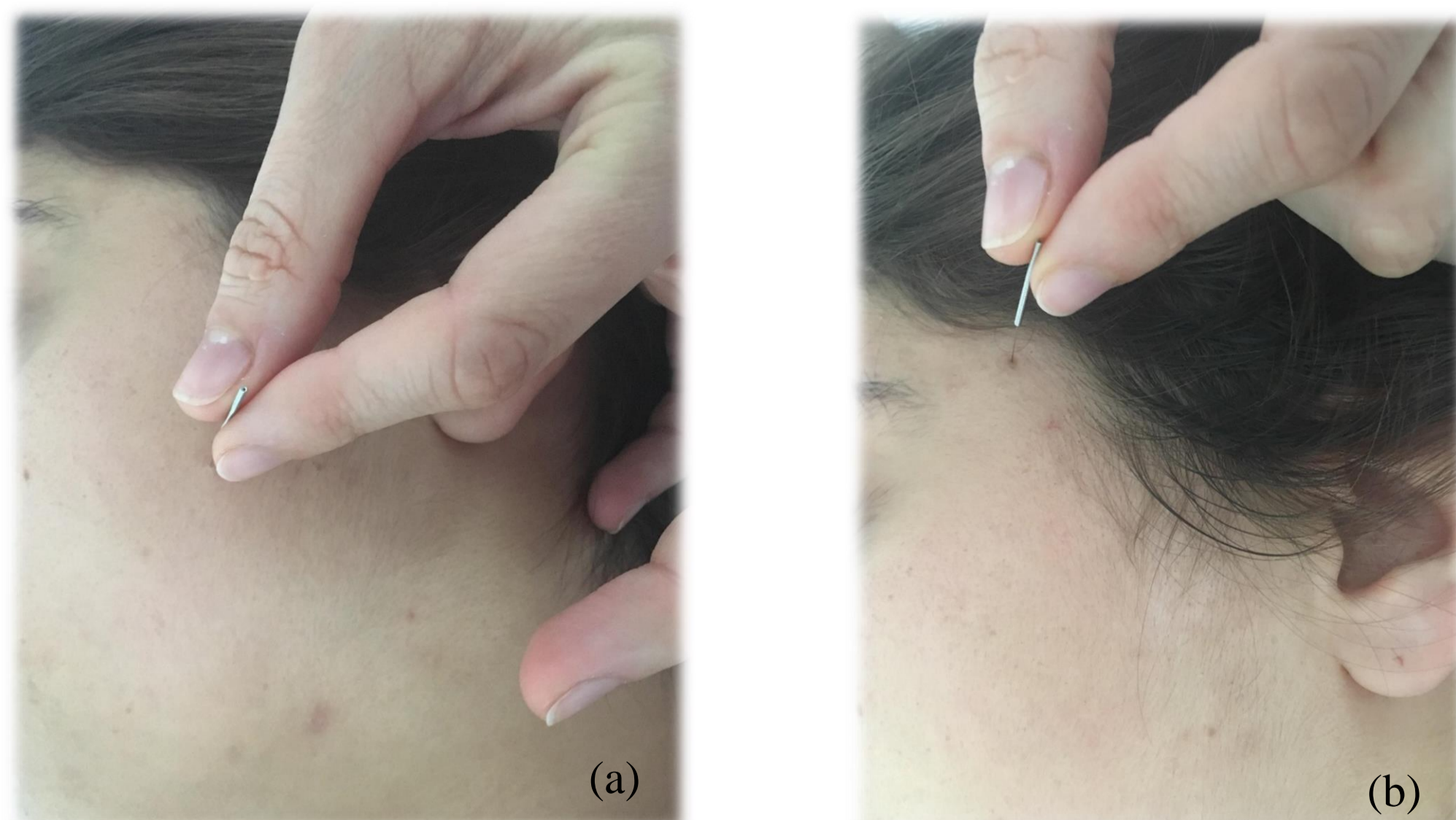


Image 2: Dry needling in the masseter (a) and temporal (b) muscle

## Results

There are no differences in the characteristics of the sample (table 1), it was possible to verify that both groups were homogeneous regarding the age ( $20.18 \pm 2.23$  vs  $20.03 \pm 1.97$ ).

Table 1: Mean and standard deviation (sd) of age pre group.

	G1 (Myofascial Manual Therapy) mean $\pm$ sd	G2 (Dry Needling) mean $\pm$ sd
Age	$20.18 \pm 2.23$	$20.03 \pm 1.97$

In the mean pressure in the masseter in the G1 (table 2) there was a statistically significant difference from M0 ( $0.831 \pm 0.244$ ) to M1 ( $1.225 \pm 0.285$ ),  $p = 0.003$ . In the mean pressure in the temporal in the G1 there was a statistically significant difference from M0 ( $0.875 \pm 0.223$ ) to M1 ( $1.343 \pm 0.287$ ),  $p = 0.010$ .

In the mean of the G1 VAS masseter there was statistically significant difference from M0 ( $6.88 \pm 0.354$ ) to M1 ( $4.88 \pm 1.727$ ),  $p < 0.006$ . In the mean pressure in the temporal in the G1 there was a statistically significant difference from M0 ( $6.88 \pm 0.835$ ) to M1 ( $3.88 \pm 1.808$ ),  $p < 0.001$ .

Table 2: Mean and standard deviation (sd), before (M0) and after therapy (M1), in G1 group.

G1 (Myofascial manual therapy)	M0 mean $\pm$ sd	M1 mean $\pm$ sd	p
PPT Masseter	$0.831 \pm 0.244$	$1.225 \pm 0.285$	0.003
PPT Temporal	$0.875 \pm 0.223$	$1.343 \pm 0.287$	0.010
VAS Masseter	$6.88 \pm 0.354$	$4.88 \pm 1.727$	0.006
VAS Temporal	$6.88 \pm 0.835$	$3.88 \pm 1.808$	0.001

M0- Pre-treatment evaluation; M1- Evaluation after one hour of treatment; PPT - Pressure pain threshold; VAS - pain intensity.

In the mean pressure in the masseter in the G2 (table 3) there was a statistically significant difference from M0 ( $0.828 \pm 0.234$ ) to M1 ( $1.107 \pm 0.265$ ),  $p = 0.059$ . In the mean pressure in the temporal in the G2 there was a statistically significant difference from M0 ( $0.928 \pm 0.107$ ) to M1 ( $1.127 \pm 0.199$ ),  $p = 0.002$ .

In the mean of the G2 VAS masseter there was statistically significant difference from M0 ( $7.000 \pm 0.577$ ) to M1 ( $4.570 \pm 2.225$ ),  $p < 0.016$ . In the mean pressure in the temporal in the G2 there was a statistically significant difference from M0 ( $7.570 \pm 1.134$ ) to M1 ( $4.430 \pm 1.813$ ),  $p < 0.002$ .

Table 3: Mean and standard deviation (sd), before (M0) and after therapy (M1), in G2 group.

G2 (Dry Needling)	M0 mean $\pm$ sd	M1 mean $\pm$ sd	p
PPT Masseter	$0.828 \pm 0.234$	$1.107 \pm 0.265$	0.059
PPT Temporal	$0.928 \pm 0.107$	$1.127 \pm 0.199$	0.002
VAS Masseter	$7.000 \pm 0.577$	$4.570 \pm 2.225$	0.016
VAS Temporal	$7.570 \pm 1.134$	$4.430 \pm 1.813$	0.002

M0- Pre-treatment evaluation; M1- Evaluation after one hour of treatment; PPT - Pressure pain threshold; VAS - pain intensity.

## Conclusions

Myofascial manual therapy and dry needling focused in masseter and temporal promoted an increased in the PPT values and a decrease in the VAS value after a single session on patient's symptoms with TMDs.

However, further studies with larger samples should be carried out in order to analyze which technique presents superior results.

## References

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