



Mandibular exercises with hyperboloid decrease pain in individuals with temporomandibular dysfunction: randomized, blinded clinical trial

Exercícios mandibulares com hiperboloide diminui a dor em indivíduos com disfunção temporomandibular: ensaio clínico randomizado e cego

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INTRODUCTION

Temporomandibular dysfunction (TMD) is characterized by a set of clinical alterations, which may present articular, muscular or mixed components¹. The most common and limiting clinical manifestation is orofacial pain. Exercise has been proposed as a tool in the treatment of TMD, being effective in reducing pain^{1,2}. The Hyperboloid is a proprioceptive device, created and developed to assist in the treatment of conditions involving the stomatognathic system². This myofunctional device is widely used for the treatment of patients with temporomandibular dysfunction (TMD), however the literature is still scarce regarding its use^{2, 3}. Thus, this pilot study aimed to evaluate and compare the effects and clinical difference of proprioceptive treatment with hyperboloid associated with tongue-on-palate exercise versus proprioceptive treatment with hyperboloid on pain intensity in individuals with TMD.

METHODOLOGY

- Randomized blinded clinical trial (CAAE 13991413.4.0000.5511; ClinicalTrials registration NCT02021357);
- Thirty-three subjects with TMD randomly allocated into two groups: G1 (hyperboloid (figure 1) combined with tongue-in-palate exercise), G2 (hyperboloid), G3 (control);
- Treatment protocol of 12 sessions (Table 2), with pre- and post-treatment assessment;
- Outcome assessed: Pain intensity (Visual Analog Scale - VAS);
- ANOVA mixed analysis of variance for repeated measures was used to check for interactions between groups and treatments, with Bonferroni adjustment and Tukey post-hoc test for pairwise comparisons and the significance level of 0.05.



RESULTS AND DISCUSSION

The treatment groups showed a clinically important difference in the pain intensity outcome, i.e., there was a decrease of at least 30%^{4,5} (Table 2). Both treatments were effective and there was no difference between them.

Table 1 - Pain intensity (VAS) of the groups before and after the interventions.

Outcome	Group	Pre	Post	p
EVA (cm)	G1	4.88±1.45	1.11±1.51	0.003*
	G2	4.36±1.47	0.86±0.81	0.001*
	G3	4.23±0.54	3.95±1.24	0.51
Outcome	Group	Pre	Post	p

Source: the authors

Table 2 - Protocol performed by groups G1 and G2, with a 1-minute interval between each exercise. G1 performed 15 repetitions of the mouth opening exercise with tongue on palate after each interval.

Exercise (6 repetitions each)
Squeezing between incisors
Pinching between the first molars on the right
Pinching between the first molars on the left
Protrusive median squeeze
Retrusive median tightening.
Lateral median squeeze to the right
Lateral median squeeze to the left
Sliding to the right
Sliding to the left

Figure 1 - <https://www.ortocentrosauade.com.br/hiperboloide-instrumento-de-mastigação->



CONCLUSION/FINAL CONSIDERATIONS

Proprioceptive treatment with hyperboloid associated or not with tongue-in-palate mouth opening exercise decreases pain intensity with clinically important differences. These results demonstrate that the hyperboloid can be used safely and effectively for the treatment of TMD patients, and that the inclusion of the tongue-in-palate mouth opening exercise does not bring additional benefits.



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