Analysis of the effectiveness of dry needling of the brachiocephalicus muscle in horses

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Objectives

To evaluate the effectiveness of dry needling in the brachiocephalicus muscle of horses with **myofascial trigger points**, by applying the treatment in 2 sessions and measuring **changes in pain** and **biomechanics,** as well as clinical evolution at 10 minutes, 7 days, and 14 days post-treatment.

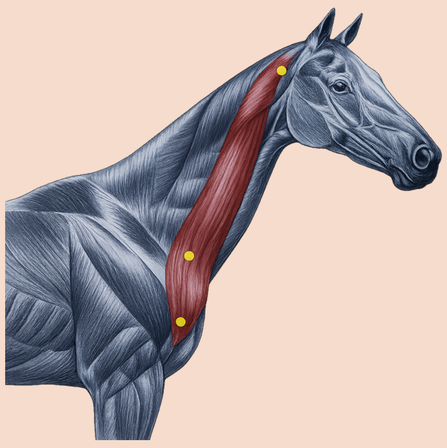

Figure 1. *Brachiocephalicus muscle.*

Introduction

Dry needling (DN) is a minimally invasive technique used to treat myofascial trigger points (TrPs), which are a common cause of musculoskeletal pain in horses. The brachiocephalicus muscle plays a key role in forelimb movement and can develop TrPs that **affect performance** and **comfort.** While DN is well established in human medicine, scientific evidence in equine practice is still limited. The treatment followed the “Fast-in, Fast-out” technique (Hong, 1994). This study employed **Sleip**, an artificial intelligence designed to identify locomotor asymmetries in horses, to evaluate gait objectively.

Methods

1 Pain evaluation

- **Assess response to palpation**
- **Based on an ordinal scale derived from EPF**

2 Clinical biomechanic evaluation

- **Lameness localization and intensity**
- **Based on the AAEP scale**

3 Sleip biomechanic evaluation

- **Stride frequency**
- **Vertical asymmetries in head and Pelvis**
- **Lameness localization and intensity**

Randomized clinical trial with **15 horses,** randomly assigned to **treatment (10)** and **control (5)** groups.
Analysis with JASP and Python (α=0.05); non parametric tests due to small n and non-normality.

Results and Discussion

Significant reduction in palpation pain, with evidence of a cumulative effect or potentiation of the response across treatment sessions.

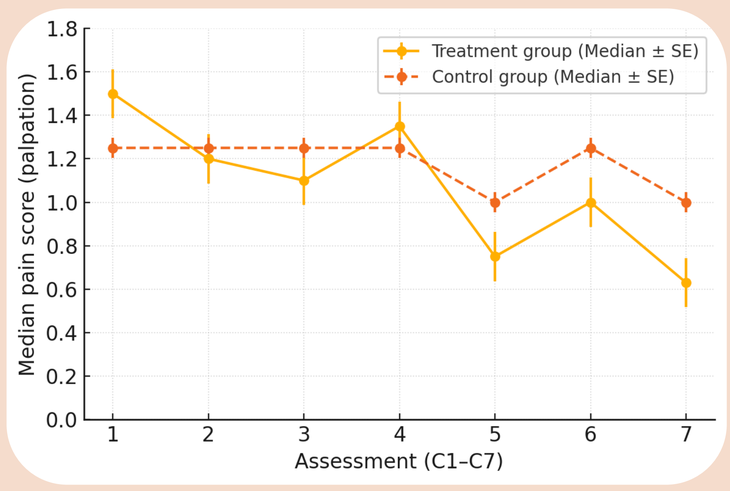

Figure 2. *Temporal evolution pain (Median)*

Stride frequency showed a slight decrease, but the change was not statistically significant. Possibly due to the fact that only one muscle was treated in this study.

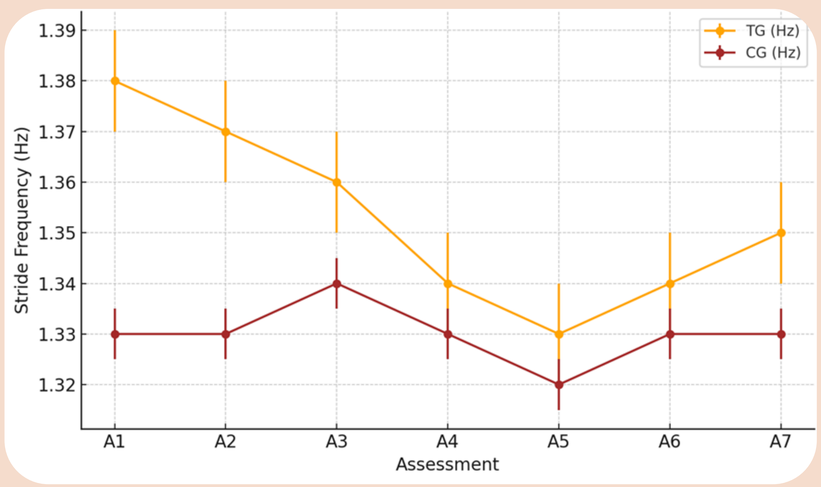

Figure 3. *Evolution of stride Frequency (Hz)*

Moderate agreement between clinical evaluation and Sleip in lameness localization.

Lightly trained horses showed more initial pain, while highly trained horses had less pain and greater improvement; however, larger sample sizes are needed to confirm statistical significance.

Head stability improved post-treatment, while pelvic changes may reflect a biomechanical adaptation.

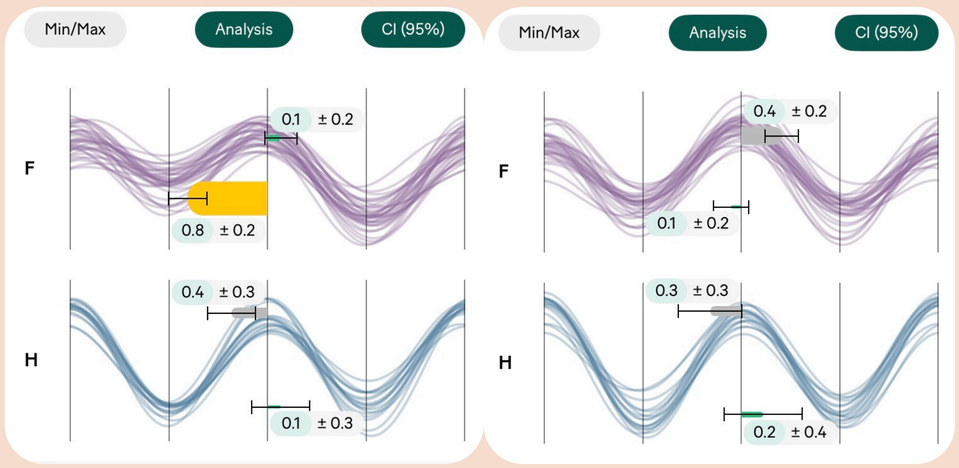

Figure 4*. Asymmetries day 1 vs day 28*

Sleip detected a possible compensatory shift in lameness, while clinical assessment showed improved intensity not confirmed by Sleip.

Conclusion

This study demonstrates that dry needling of the brachiocephalicus muscle (2 sessions spaced 14 days apart) significantly reduces palpation pain and improves head symmetry. Additionally, results suggest a cumulative or potentiated therapeutic effect with repeated sessions.

Although stride frequency did not change significantly, it followed patterns previously described in the literature.

In contrast, changes in pelvic movement were inconsistent and warrant further investigation.