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The importance of the twist in the context of proper saddle fit

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1. Background

The region of T10-T13 (region of the twist of the saddle) is important for proper saddle fit[1]. In horses working with a hollow back, the spinalis thoracis muscle helps lifting the head and stabilizing the spine in dorso ventral extension[2]. Excessive activity of this muscle leads to hypertrophy, hypertension and finally painful reaction to palpation.

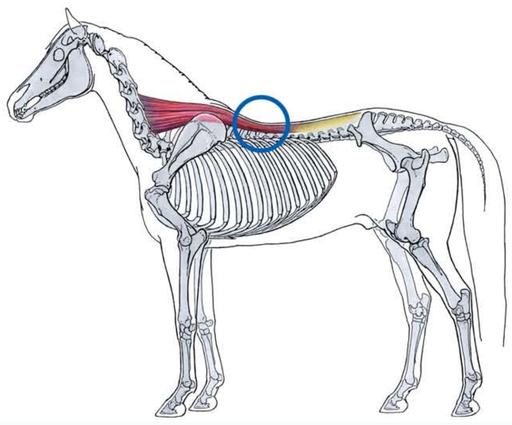

Fig.1: *M. spinalis* with its three parts – *cervicis, dorsalis and thoracis* (encircled), linking the spinous processes of the cervical, thoracic and lumbar vertebrae.

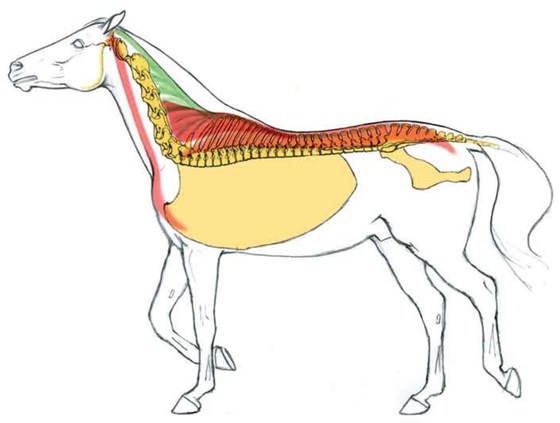

Fig.2: *M. spinalis* helps stabilizing the spine in extension (hollow back).

2. Aim

This study aimed at investigating the correlation between saddles without/with narrow twist (having medioventrally curved rails and panels at the narrowest part of the seat), presumed to create high pressure in their craniomedial area (the region of the back below which the Spinalis thoracis muscle sits) during riding, and the occurrence of hypertonicity and painfulness of the spinalis thoracis muscle.

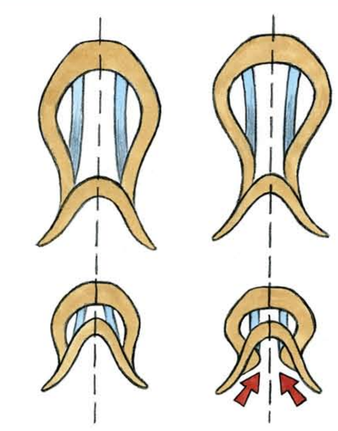

Fig.3: Outline of two different saddle tree types: wide twist with straight rails vs. narrow twist with medioventrally curved rails (red arrows).

3. Methods

192 horses and saddles underwent a thorough assessment by two experienced professionals (including palpation of the horse's back and a manual assessment of the saddle to determine the twist). The mean pressure in the craniomedial area during rising trot was evaluated by electronic saddle pressure measurements. Differences in frequencies and means of the parameters of the manual and electronic assessment between saddles with/without narrow twist were investigated with (binomial) regression models.

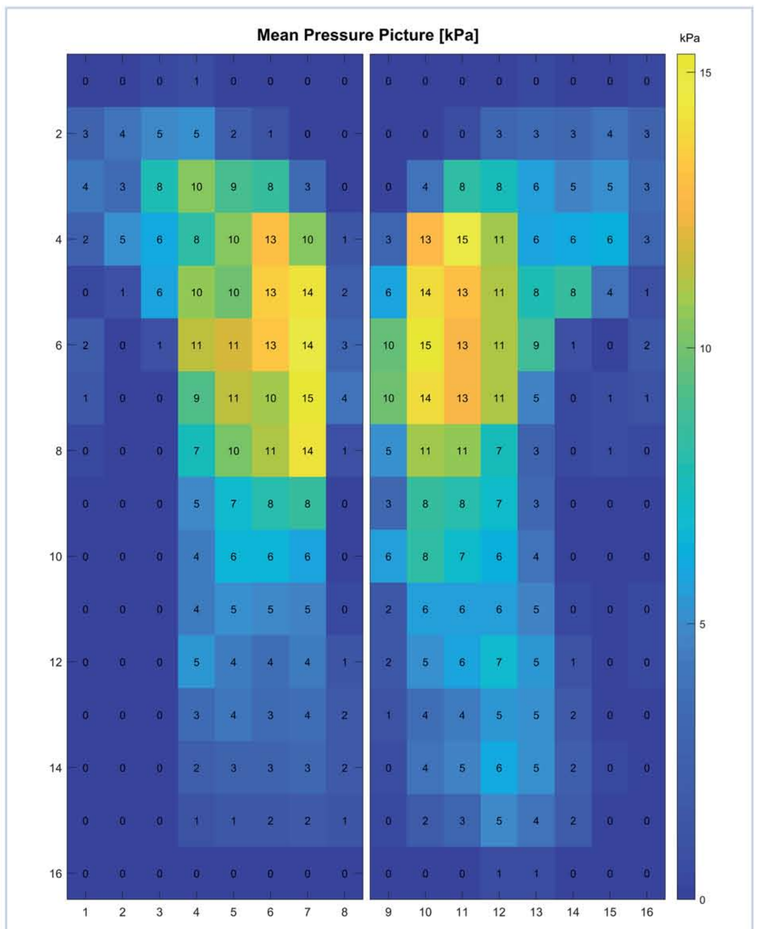

Fig.4: Typical mean pressure picture of a saddle with a narrow twist.

4. Results & Discussion

Comparing the craniomedial area, saddles with narrow twist showed higher pressure (based on subjective manual assessment: P=0.02; based on electronic measurement: P=0.01), and larger areas with pressures >12kPa (P=0.02), and more incidences of hypertrophy in the Spinalis thoracis muscle (P=0.01).

Fig.5: Horse-rider combination equipped with the saddle pressure measurement device.

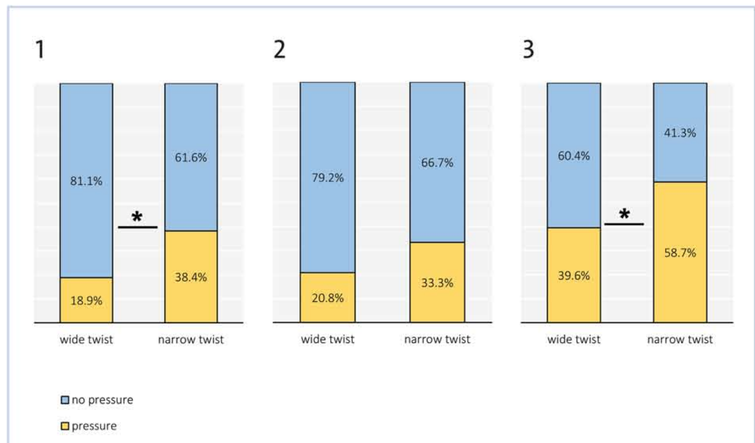

Fig.6:
1. Proportion of horses showing hypertrophy of *M. Spinalis*.
2. Proportion of horses showing painfulness of *M. Spinalis* upon palpitation.
3. Proportion of saddles with subjective pressure below the craniomedial panel edge.

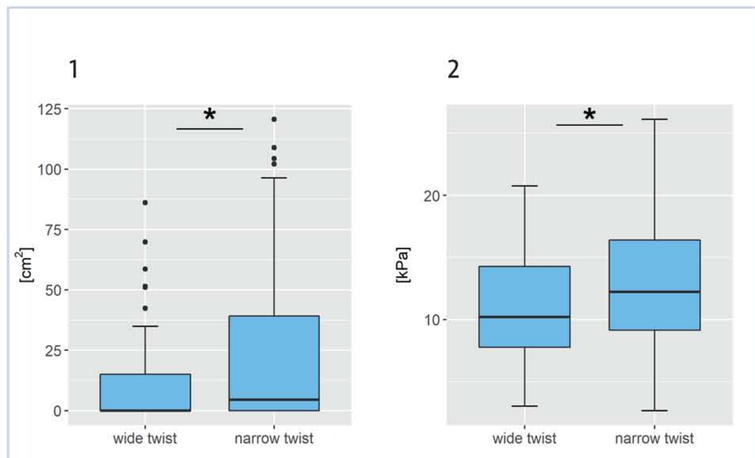

Fig.7:
1. Mean area of pressure > 15 kPa in the craniomedial area below the saddle.
2. Maximum pressure in the craniomedial area below the saddle.

5. Limitations

Manual assessments are somewhat subjective; the twist of the tree can only be assessed via the curvature of the panels.

Conclusion

Saddles with narrow twists may contribute to the vicious circle of back pain in horses not working in a correct frame.

Contact

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References

1. Murray et al. (2017) J Equine Vet Sci 54, 60-69.
2. Wissdorf et al. (2002) Publisher: M. & H. Schaper, Hannover.