

The use of Dynamic Mobilisation Exercises for strengthening core muscles in horses

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INTRODUCTION

- ✓Equine physiotherapy today is in increased interest. It is about restoring the physical, social and psychological welfare.
- ✓“Core” refers to the group of muscles that stabilize the neck, trunk and pelvis. Core muscles are a key component in controlling body posture.
- ✓Core muscles → Multifidus, transversus abdominis, external abdominal oblique, internal abdominal oblique, rectus abdominis and diaphragm.

OBJECTIVES

- ✓Evaluate the effect of dynamic mobilisation exercises in sport horses using ultrasound to quantify the thickness of the transversus abdominis and rectus abdominis muscles and the volume of the multifidus in 4 different sections of the back.

MATERIAL AND METHODS

- ✓11 sport horses (aged 5-18).
- ✓7 cases → performing dynamic mobilisation exercises (DME)
- ✓4 controls → not performing DME.

DME → 5 repetitions, 5 days/week, 60 days, 5” each:

- ❖ Rounding
- ❖ Lateral bending
- ❖ Neck extension
- ❖ Combined lumbosacral and abdominal lifting and bending



Rounding exercise



Lateral bending exercise



Neck extension exercise



Combined lumbosacral and abdominal lifting and bending exercise

RESULTS

MUSCLE	Mean difference cases (cm/cm ²)	Mean difference controls (cm/cm ²)	Standard deviation cases	Standard deviation controls	P Value
Trans. Abdo R	-0,186	0,046	0,3	0,1	0,17
Trans. Abdo L	-0,272	-0,173	0,47	0,2	0,69
Rectus Abdo R	0,107	0,017	0,13	0,23	0,51
Rectus Abdo L	0,1	0	0,15	0,18	0,39
Multifidus T15 R	2,256	1,552	2,28	1,77	0,59
Multifidus T15 L	1,371	0,465	0,8	3,27	0,62
Multifidus T18 R	0,437	1,742	1,74	1,03	0,24
Multifidus T18 L	-0,628	2,020	1,75	1,05	0,01
Multifidus L2 R	-0,151	0,760	2,7	2,02	0,58
Multifidus L2 L	-0,448	1,813	2,05	2,18	0,2
Multifidus L4 R	1,418	2,090	2,07	2,96	0,7
Multifidus L4 L	1,744	0,397	3,52	2,24	0,46

Table 1. Transversus abdominis (cm), rectus abdominis (cm) and multifidus muscles (cm²), right (R) and left (L) sides.

DISCUSSION

- ✓Factors to consider in a practical study: selection of horses, their readiness for performing the exercises, the program execution and data processing staff, etc.
- ✓Less varied and less repetitions in the DME routine.
- ✓Possible mistakes in the data collection.
- ✓Need of new studies regarding muscle hypertrophy in healthy and well muscled horses.
- ✓More relevance to the correct intrinsic muscle activation and the quality of the muscle fibres instead of looking only the thickness and the volume.
- ✓Consider a wider DME routine and time of posture holding (10 or 15” instead of 5”).

CONCLUSIONS

- ✓There is no increase of the thickness of the transversus abdominis and rectus abdominis muscles or the volume of the multifidus after the performance of Dynamic Mobilisation Exercises in the horses of this study.
- ✓In order to show more impact in the core muscles of sport horses, consider the possibility of using protocols which increase the stretch holding time.