Functional Electrical Stimulation (FES) and the Effect on Equine *Multifidi* Asymmetry

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Ultrasonographic evaluation of the cross sectional area (CSA) of the equine *multifidi* muscles pre- and post-functional electrical stimulation (FES) training for 8 weeks, compared with controls, was obtained on 12 horses. The overall CSA of right/left equine thoracolumbar *multifidi* showed significant (*P* < .001) improvement in symmetry of the *multifidi* after 8 weeks of FES training when compared with no significant change in controls. Authors’ address: N8139 900th Street, River Falls, WI 54022; e-mail: sbschils@EquiNew.com. *Corresponding and presenting author. © 2017 AAEP.

1. Introduction
A clinical improvement in the right/left symmetry of the equine epaxial muscles has been an observed outcome of functional electrical stimulation (FES) training. Ultrasonographic measurements of the cross sectional area (CSA) of the right and left thoracolumbar equine *multifidi* muscles pre- and post-FES training, when compared with controls, was evaluated to determine objective changes in symmetry.

2. Materials and Methods
Twelve horses received FES treatments over the thoracolumbar epaxial muscles for 8 weeks. Twelve additional control horses received no FES treatments. Ultrasonographic measurements of the CSA of the *multifidi* muscles at 7 thoracolumbar levels were compared to determine right/left symmetry pre- and post-FES training. The same measurements during the same timeframe were also taken from the control group; *t*-tests were used to test for statistical significance.

3. Results and Discussion
The overall CSA of right/left equine thoracolumbar *multifidi* showed significant (*P* < .001) improvement in symmetry after 8 weeks of FES training. In addition, all individual levels were significantly improved in symmetry post-FES (*P* < .05). The control horse group was nonsignificant for symmetry for both overall and individual thoracolumbar *multifidi* CSA pre- and post-8 weeks.

Acknowledgments
Brian Kanable provided statistical analyses and the A&CM Carraro Foundation for Translational Myology provided technical support.

Declaration of Ethics
The Authors have adhered to the Principles of Veterinary Medical Ethics of the AVMA.

Conflict of Interest
Dr. Sheila Schils is a principle of the company EquiNew which provided the FES equipment and funded the statistical analyses. The remaining Authors have no conflicts of interest.

*Research Abstract—for more information, contact the corresponding author*

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