science SUPPLEMENTS
The Equine Nutrition Specialists

QUESTION: Does an oral supplement containing Melissa Officinalis extract and L-Theanine affect gait biomechanics in dressage?

Background

- A horse must be relaxed and cooperative, working in harmony with the rider to achieve the highest scores in a dressage test (FEI Handbook, 2012).
- Currently the National and International federations have no objections to the use of calming supplements provided they do not contain prohibited substances.

Aim of Study

To investigate the use of an oral supplement containing Melissa Officinalis extract and L-Theanine (ProKalm, Science Supplements) to improve gait quality, and therefore dressage performance, in the competition horse by increasing relaxation.

Study Design

- *Placebo-controlled* = some horses received the active supplement and some received a supplement with no active ingredients (placebo). Use of a placebo helps reduce bias (seeing a false positive result) and allows for the fact that an improvement might be observed from horses spontaneously improving.
- *Randomised* = which horses were given placebo was pre-determined by a random system rather than a person deciding at the time of seeing a horse. This removes bias in the results caused by selecting only certain horses (e.g. less itchy horses) to have a particular treatment.
- *Blind* = owners did not know if their horses received the active supplement and or placebo supplement. Blinding removes bias caused by people wanting to see a positive effect with the active supplement.
- *Crossover trial* = all horses received both active supplement and placebo allowing the response of an individual horse to each treatment to be compared. Crossover trials are potentially more efficient than similar sized, parallel group trials in which each horse is exposed to only one treatment.
- *Washout* = the time between treatments (active supplement and placebo). A washout period of time allows the treatment from the first period to be washed out of the patient's system.

Study Outline

Twenty-five competitive dressage horses, currently competing at British Dressage levels from Novice to Advanced, were volunteered for the trial with their usual riders. Horse and rider combinations were assessed biomechanically and by two British Dressage Level One dressage judges following: 1) no intervention, 2) placebo administration and, 3) ProKalm administration in a randomised order. Placebo and ProKalm were administered for four days at a dose of 64g/day, split evenly between two feeds, with ridden assessment occurring on the fourth day. Each horse was then given a 48h washout period before the next phase of the study. The authors, judges and participants were blinded throughout the trial and no feedback was given to riders during the trial, other than to acknowledge that data collection was successful. The same assessment was performed by each horse and rider, in their home environment, on the same surface, on each of the three test occasions. Horses sequentially performed a medium walk, free walk, working, collected, medium and extended trot (where established), and a working canter. Each movement was recorded three times in each direction, giving a minimum of fifteen strides. The tests were filmed, marker-free, in three dimensions at high-speed for biomechanical analysis and simultaneously in two dimensions at 25Hz to allow dressage judges to remotely assess the performance.

Study Results

- Of the 25 participants' 75 testing days, 8 were lost irreparably through cancellations due to injury, ill health and weather conditions leaving 21 horses with complete data sets.
- The placebo had a positive effect on horse and rider performance and this was used to give a baseline of inter-trial variability. A beneficial effect produced by a placebo is considered to be due to the owner's belief in that treatment.
- Stride length, fetlock angles, hock angles and movement, and centre of gravity displacements were significantly different following ProKalm administration. Significantly greater hock joint movement was present at the collected and working trots and at the canter in the ProKalm test. Fetlock joint peak angle significantly increased during stance in the ProKalm test in collected and working trots. Stride length was shown to significantly increase in working and extended trots and in canter.
- A significant increase in the judge's scores, above the inter-trial variability suggested by the placebo results, was observed following ProKalm administration.

Take Home Message

- ProKalm improved some aspects of dressage movements which may be a result of the increased hind limb engagement suggested by the higher peak hindlimb hock angles.
- As ProKalm has no pain-killing effects, it is assumed the increased stride length and hindlimb angles is the result of less tension, however further work is required to confirm this hypothesis.