

## The effect of an elastic resistance band around the hindquarters on equine dorsoventral back kinematics

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**Background:** In horses, lameness and back problems caused by overloading and repetitive stress due to poor balance and working posture are common. The Equiband™ system is suggested to improve dynamic stability and posture by providing proprioceptive stimulation to the hindquarters.

**Objectives:** To investigate the effect of the Equiband™ resistance band around the hindquarter on equine thoracolumbar dorsoventral back kinematics.

**Materials and methods:** A paired controlled intervention study with seven privately owned horses, considered sound by their owners and in regular work were included in this study, lasting over 3 days. Thoracolumbar dorsoventral kinematics were measured at walk and trot in-hand on a straight line under 3 conditions: (1) with the Equiband™ hindquarter band attached to a single girth. (2) With only the single girth and (3) Control (no girth or band). Reflective markers were attached along the back and 20 high speed motion cameras and their associated data management software captured and processed the data. The mean motion differences for segments L5, L3, T15 and T12 were analysed using a student's t test on normally distributed data and Wilcoxon signed ranks test on non-normally distributed data.

**Results:** Significant differences were detected in both walk and trot for ROM and separate flexion/extension values for all three conditions. A stabilizing effect with the Equiband™ was seen in the lumbar area and at T12, except for L5 in walk where an increased ROM was detected compared to the control condition. At T15, an increased extension occurred with the Equiband™. The girth showed a significant effect especially at T12 and T15 similar to the Equiband™ effect.

**Conclusions:** The Equiband™ hindquarter band is a powerful tool for altering the thoracolumbar back kinematics. Stabilisation of the lumbar region may confer improved working posture and an increased core stability. Further studies are needed to investigate the additional effect of the abdominal elastic band.