

Morphometric analyses of the normal suspensory ligament in Standardbreds

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Abstract

The suspensory ligament (SL) is composed of connective tissue (CT) with a variable proportion of muscle (MT) and adipose tissue (AT). The aim of our study is to quantify the CT, MT and AT within the SL in sound horses. Right limbs from 11 horses were collected. Samples from 6 levels of the SL were embedded in paraffin or in Tissue-Tek®. Most of the paraffin sections were shredded. Using the cryosection, some artefacts appeared. Cryoprotection was carried out, which produced the best results. Hematoxylin–phloxine–saffron and Hematoxylin–eosin gave a good contrast of colours between the tissues allowing the use of an image analysis programme. The percentage of MT and AT decreased significantly ($P < 0.0001$), whereas the percentage of CT increased significantly ($P < 0.0001$) with age and when descending from the proximal to the distal level of the SL. The percentage of MT was significantly higher ($P < 0.0001$) in females than males, while the percentage of CT was significantly higher ($P < 0.0001$) in males than females. The percentage of AT was significantly higher ($P = 0.0278$) in pelvic limbs than in thoracic limbs. These results confirm the variation in tissue composition within the SL of sound horses.

