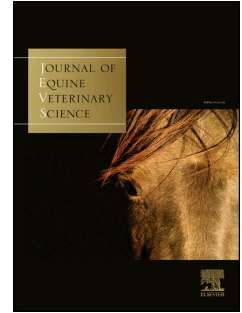


# Accepted Manuscript



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**A NOVEL EQUINE HOOF LAMELLAR TISSUE BIOPSY TECHNIQUE**

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**Abstract**

This study aims to validate in horses the efficacy of a new device specifically developed for lamellar biopsy. Nine adult horses were used. Under sedation and digital nerve perineal anaesthesia, and after horny tissue thinning, a sample from the dorsal lamellar stratum was obtained using an instrument denominated Falcão-Faleiros' lamellotome. Hoof pain sensitivity was evaluated for 60 days. Lateromedial radiographic images to analyse the spatial relationship between the distal phalanx and the hoof capsule were obtained prior to and 30 days after the biopsy. The effect of time on the variables was statistically analysed ( $P < 0.05$ ). On average ( $\pm$ SD), the biopsies produced samples were 2.32 ( $\pm$ 6.37) cm in length, 0.48 ( $\pm$ 0.09) in width and 0.51 ( $\pm$ 0.11) cm in depth. A mean of 69 unspoiled primary epidermal lamellae were obtained per biopsy sample. Lameness and sensitivity to the hoof testers were evident during the first four days, but returned to basal levels after the fifth day. Minimal radiographic changes were observed, and the horses completely returned to their regular activities after 60 days. The use of the lamellotome for equine hoof lamellae biopsy produced an adequate quality and quantity of histological samples allowing for the full clinical recovery of the horses.

**Keywords:** Laminitis, lamellae, horse.

**1. Introduction**

During the last decades, the analysis of equine lamellar hoof tissue have been significantly improved the understanding of the pathophysiologic changes caused by the many forms of horse laminitis. [3, 4, 7, 11, 14, 21]

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