

The Effects of Chronic Electrical Stimulation on Laryngeal Muscle Physiology and Histochemistry

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Abstract

The present study examined the effects of functional neuromuscular stimulation (FNS) on posterior cricoarytenoid (PCA) muscle physiology and histochemistry. In 4 canines, 10 cm of the recurrent laryngeal nerve was resected. A patch electrode array was implanted for PCA stimulation. FNS was applied to 2 canines for a period of 4 weeks with 2 additional animals serving as nonstimulated controls. Results indicated that FNS increased PCA muscle contractility over the period of intervention but had no effect on contraction speed. FNS also protected the muscle from atrophy by preventing muscle weight loss and type 2 fiber deterioration. Finally, it rescued muscle fibers from ensuing fibrosis.

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