Abstract
Background: Muscles are innervated exclusively by a nerve branch and possess definite actions. However, mammalian skeletal muscles, such as the trapezius, the medial gastrocnemius, and the peroneus longus, are compartmentalized. In the peroneus longus muscle, multiple motor points, which innervate individual neuromuscular compartments (NMC), the superior (S-NMC), anteroinferior (AI-NMC), and posteroinferior (PI-NMC), have been described. The contribution of each neuromuscular compartment to the final action of the muscle is fundamental for the rehabilitation of patients afflicted by neurological and muscle dysfunctions. Interventions are often based on electrical principles that take advantage of the physiological characteristics of muscles and nerves to generate therapeutic effects. Objective: To compare the effects of stimulating the different neuromuscular compartments (NMCs) of the peroneus longus muscle on the motor threshold (MT) and acceleration of the foot. Method: This is a cross sectional study comprising 37 subjects. The three NMCs of the peroneus longus muscle were stimulated, and the acceleration of the foot and the motor threshold of each NMC were evaluated. A repeated measures analysis of variance with Bonferroni corrections of two intra-subjects factors was performed. Results: The stimulation of the different NMCs did not result in any differences in MT (F=2.635, P=0.079). There were significant differences between the axes of acceleration caused by the stimulation of the different NMCs (F=56.233; P=0.000). The stimulation of the posteroinferior compartment resulted in the greatest acceleration in the X-axis (mean 0.614; standard deviation 0.253). Conclusions: The posteroinferior compartment primarily contributes to the eversion movement of the foot. NMCs have specific functional roles that contribute to the actions of the muscles to which they belong.

Keywords
Neuromuscular compartment, peroneus longus muscle, accelerometry, motor threshold, motor point, physical therapy.