

EFFECT OF CHANGES IN CYCLE ERGOMETER SETTINGS ON BIOELECTRICAL ACTIVITY IN SELECTED MUSCLES OF THE LOWER LIMBS

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Abstract

Introduction. The aim of this study was to measure the duration of biopotentials in selected muscles of the lower limbs, evaluate the time of elevated bioelectrical activity in these muscles, and identify similarities and differences in electrical phenomena that occur in the muscles for various external settings of a cycle ergometer. **Material and methods.** The study examined 10 healthy people (5 women and 5 men) aged from 20 to 30 years. A cycle ergometer and EMG apparatus were used in the experiment. The bioelectrical activity of six muscles of the lower limbs (rectus femoris, vastus medialis, tibialis anterior, biceps femoris, gastrocnemius caput mediale, and gastrocnemius caput laterale) was recorded for four different settings of the cycle ergometer (variable saddle height and method of foot attachment to pedals). The EMG records were presented with reference to the bicycle crankset rotation cycle. **Conclusions.** The study found that changing the height of the saddle of the cycle ergometer and the use of toe clips in the pedals caused changes in bioelectrical activity in the muscles. The adjustment of saddle height affected the duration of potentials more noticeably than the use of toe clips. Furthermore, only one period of elevated electrical activity in the muscles of the lower limbs was found in the pedalling cycle. The longest time of the presence of action potentials was recorded for the m. gastrocnemius caput laterale, whereas the shortest time was observed in the m. vastus medialis.

Key words: biomechanics, electromyography, pedalling, muscle, lower limb