Changes in spinal presynaptic inhibition under certain massage techniques
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Most researchers mainly deal with the influence of relaxing and toning massage on the inhibition processes in general. Our study concerns the question of influence of selective and combinative application of various massage techniques on presynaptic inhibition modulations. The actuality of the study is also determined by practical demands of neurotherapy, functional diagnostics, physical therapy, physiology and pedagogics of physical education.

Our goal was to determine changes in intra- and intersegmentary systems of Ia afferents presynaptic inhibition under different dosed manual manipulations. The method of estimation of heteronymous Ia afferents1 presynaptic inhibition were explored (H. Hultborn, et al., 1987). The method is based on measuring of m. soleus H-reflex facilitation provoked by n. femoralis conditioning stimulation. An electroneuromyograph Neuro-MEP-8 (by Neurosoft Company, Russia) was used in the investigation, which made it possible to process the results through the computer program Myo (St. Petersburg, Russia, 2003). 18 athletes at the age of 18-23 adapted to endurance loads participated in the research. Massage was applied on a thigh surface for a 5 min period. The following principle sport massage techniques were used during the experiment: stroking, kneading, squeezing, rubbing, shaking and punching. Recording of results was made during a 15-min period after massaging.

It was discovered that certain massage techniques such as stroking and shaking augment spinal inhibition by 8.3% and 17.5% accordingly (p<0.01). We detected the increase in spinal inhibition of 10.6% from baseline while combining these manipulations (p<0.01). The application of kneading and squeezing induce presynaptic inhibition reduction of 18.2% (p<0.01) and 2.6% (p>0.05) accordingly. This effect retains during 15 min after massage. It was revealed that during the first minute after massage rubbing and punching induced inhibition augmentation of 7.2% (p<0.05) and 14.6% (p<0.001) from baseline accordingly. Bat 7 min afterwards spinal presynaptic inhibition decreased by 4.3% (p>0.05) and 28.2% (p<0.001) from baseline accordingly. Combination of rubbing, punching, kneading and squeezing enduces inhibition augmentation by 25.4% (p<0.01).

The results of the research show that a combinative application of massage manipulations provokes antagonist interactions of afferent volleys on the spinal level.


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