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Using Vicon to evaluate the change in the motor function during electro stimulation in rats

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The main objectives of our study were the motor symptoms of Parkinson's disease. Neuro stimulation is an electrical effect on brain structures through percutaneous or implanted electrodes. In research we used video analysis of motion (Vicon system) to evaluate the change in the motor function and understand the effectiveness of the electro stimulation. In the video analysis of motion using specialized infrared cameras, the position and movement of the object in space is monitored. After that, we get data of the position of each of the markers, which can potentially be used to analyze the disturbance of the motor function and its subsequent recovery. In the work, video analysis was used to analyze the movement of rats, Parkinson's patients before and after electro stimulation. Electro stimulation is one of the most effective ways to combat the symptoms of Parkinson's disease. In the study video data of the motion was analyzed to understand the influence of electro stimulation on quality of the motion function. It was shown that the variation in angular values in the joints of the pelvic limb of a rat during walking, high values of the standard deviation may indicate the presence of muscle tremor. The results also show that electrical stimulation of the spinal cord has a positive effect on restoration of locomotion after neuronal damage caused by the model of Parkinson's disease in rats. It can be concluded that electrical stimulation of the spinal cord has a positive effect on the biomechanical characteristics of locomotion in Parkinson's disease.

Biography

Mikhail Zaytsev is currently pursuing Bachelor's degree program in the Kazan Federal University, Institute of Fundamental Medicine and Biology.

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