

Abstract

Title: The use of virtual reality in combination with electrostimulation of spinal cord and its influence on individual with incomplete spinal cord injury.

Objectives: The main aim of this work is to find out if virtual reality in form of therapeutic videos filmed in the first person perspective and in combination with electrostimulation of spinal-cord has influence on neurological state and subjective perception of young man with spinal-cord injury.

Methods: A 25-year-old proband, with incomplete spinal cord lesion syndrome for 10 years, underwent this qualitative research (case study). Proband had been watching ten-minute-long therapeutic videos through VR headset in combination with electrostimulation on average 2–3 times per week over a period of 5 months. In order to record proband's neurological state ASIA Impairment Scale test was used. This test was carried out before, during and after the research. Proband's subjective feelings and pain were evaluated on a point scale: 0–10 and recorded in proband's diary.

Results: Proband's sensitivity showed minor improvement. Input score of sensory subscores light touch on ASIA Impairment Scale test were 84 points and output score increased to 86 points. Input score of sensory subscores pin prick were 75 and output score increased to 78 points (of total 112 points). However no motoric change at lower and upper limbs was observed. During the research proband recorded intensive subjective perceptions (for example tingling) which were, according to output score, more intensive in morning hours and in combination with electrostimulation.

Keywords: ASIA Impairment Scale test, therapeutic videos, mirror neurons, spinal cord injury, spinal cord stimulation