

Digital therapeutics (DTx) EMG biofeedback solution case study for right hand focal dystonia

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Abstract

Digital therapeutics (JOGO) involving surface electromyographic biofeedback (EMG BF) is an innovative treatment that uses sensory inputs to facilitate neuromuscular retraining. Combining EMG BF sensors and a gamified visual representation of muscular activity with conventional therapy (CT), JOGO improves the motor abilities of a patient with focal dystonia through immediate feedback of muscular activity and neuroplasticity. JOGO's engaging patient interface utilizes features such as mobile gamification to increase patient compliance relative to CT, amplifying clinical outcomes. The patient received JOGO-integrated therapy sessions four times a week in response to initial complaints of involuntary movements in his right hand. Over three months of CT (three times a week) integrated with JOGO (once a week), JOGO facilitated and improved muscle control in the patient's right wrist extensors. Evaluations initial and 4 weeks post: The patient's resting potential in his right wrist extensors decreased from over 40 mvs to 17 mvs. The patient's ability to hold a pen increased from 10 seconds to 70-100 seconds. JOGO's user-orientated interface optimizes rehabilitation by allowing the patient to experience visual control over their neuromuscular junctions. Further studies are in progress to evaluate the efficacy of EMG BF integrated rehabilitation.

Biography:

Dr. Sunder earned his MD in Physical Medicine & Rehabilitation from DR. MGR Medical University, India and completed his Post Graduate Diploma in Physical Medicine and Rehabilitation from Madras Medical College at the Government Institute of Rehabilitation Medicine, Chennai, India. He was the recipient of the Lady Tata Memorial Research Scholarship for a project on Rehabilitation of Upper Extremity Amputees, and was trained in Washington DC as an evaluator for a NIH funded program on Muscular Dystrophy. He is an internationally certified GCP principal investigator for clinical trials and regularly travels internationally to participate in research trials.

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