EMG Rehab System: A Package for Stroke Self Rehabilitation

Chow, Wang Yui (School: Christian Alliance SW Chan Memorial College)
Cheung, Sau Nam (School: Christian Alliance SW Chan Memorial College)

Nowadays, stroke is a common chronic disease globally with a surging number of sufferers. Over 1 in 4 adults suffered from stroke in their lifetime, It's seriousness leads to a massive number of stroke patients queuing for public physiotherapy and rehabilitation services annually. According to the Nice National Institute for Health and Care Excellence, the average allocation period for each patient is as long as six months due to a shortage of physiotherapists. Under this circumstances, many stroke patients have missed the golden recovery period. The EMG Rehab System is an transitional package based on orthodox rehabilitation treatment. The auxiliary approach allows stroke patients to conduct their rehabilitative training at home or community center nearby without the continuous supervision of physical and occupational therapies. The training has 3 phases progressively. The first phase offers patients an exoskeleton, which steadies one of their arms, and they can start push-pull exercises commodiously. When the patient has adopted the exoskeleton, the second phase has integrated a muscle sensor and game scene to elevate the efficiency of the training outcome. While the muscle sensor can detect the power of patients' muscles in order to ensure they use correct and sufficient force, the game scene works as an encouragement for patients and progressive records for their therapy. In the final phase, a more comprehensive scenario involves Virtual Reality technology to establish training in the 3D virtual world. Patients in the immersive scenes have many options to practice different life skills. Therefore, it can effectively train their brain-body coordination ability.

Awards Won: