Editorial Note

Rehabilitation for stroke patients with severe motor impairments (e.g., inability to perform wrist or finger extension on the affected side) is burdensome and difficult because most current rehabilitation options require some volitional movement to retrain the affected side. Stroke is a leading cause of adult long-term disability worldwide and an increasing number of stroke survivors suffer from severe cognitive and motor impairments each year.

Rehabilitation following stroke focuses on maximizing restoration of lost motor and cognitive functions and on relearning skills to better perform activities of daily living (ADLs). The Alpha rhythm is also termed Rolandic mu or the sensorimotor rhythm (SMR) when it is localized over the sensorimotor cortices of the brain. Neuro feedback-induced changes in brain activity have also been linked to changes in brain activity at rest. We assessed intervention results using clinical measures, Transcranial Magnetic Stimulation (TMS) and Magnetic Resonance Imaging (MRI) and compared these measures before and after the intervention.

Medications for spasticity were not permitted during the study intervention. We implemented a software architecture that could be tailored for stroke patients with different motor capabilities and rehabilitation needs. The World Trade Center Health Program (WTCHP) has a research mission to identify physical and mental health conditions that may be related to the 9/11 terrorist attacks as well as effective diagnostic procedures and treatments for WTC-related health conditions. We mapped peer-reviewed studies in the literature to the NIEHS framework and used WTCHP program documentation and grey literature to find evidence of translation of research into clinical practice and policy. Using the NIEHS framework, we identified numerous translational milestones and bridges, as well as areas of opportunity, within each case study. Participants attended a comprehensive medical interview and eye examination by trained technicians. Self-reported history of angina, heart attack, stroke, arthritis, diabetes, and asthma were collected. Monocular distance logarithm of the minimum angle of resolution (logMAR) visual acuity was measured using forced-choice procedures according to the Early Treatment Diabetic Retinopathy Study (ETDRS) methods with habitual correction and with best correction after subjective refraction. The two principal causes of visual impairment in our study were cataract and ARM. Only these two conditions were compared because of the low number of subjects with other conditions. Participants with either correctable or noncorrectable visual impairment were more likely to be older and to receive a government social security pension, but were less likely to be married, to have higher qualifications, to own a home or be currently employed than participants without impairment.

Conclusion: The increasing prevalence of age-related visual impairment and its associated reduction in well-being, functional status, and independence, will greatly increase the resultant burden of disease. This suggests a greater need for eye care services in older populations, particularly in relation to visual impairment due to undercorrected refractive errors.