and resulted in p-values all $p<0.005$, indicating the test groups were significantly different. Therefore, pairwise t-tests with Bonferroni corrections ($p<0.017$) were used to determine pairs that were significantly different. Assembly A (3.5mm rods only) was found to be significantly less stiff than Assembly B (dilating rods) and Assembly C (3.5mm-connector-5.5mm rods) in each mode of bending: compression bending, tension bending, and torsion. Assembly A had a significantly greater range of motion in compression bending and torsion, but not tension bending, when compared to Assembly B and Assembly C. The only significant difference between Assembly B and Assembly C was found in the stiffness value of compression bending. DISCUSSION/SIGNIFICANCE OF FINDINGS: The results of this study indicate that incorporating a 5.5mm rod in a fusion assembly adds significant stiffness to the posterior spinal fusion construct. When stability of a fusion is of heightened concern, as demonstrated by the ASTM F1717 vertebectomy (worst case scenario) model, including 5.5mm rods increases the likelihood of fusion success.

Clinical Trial

70925

A TL1 team approach to investigate attention and learning at the intracranial network level and assess the effect different cognitive rehabilitation strategies have on measures of attention and learning*

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ABSTRACT IMPACT: Access to intracranial recording in our epileptic sample provides a unique opportunity to characterize neurological activation patterns associated with attention and implicit learning; this foundational physiological understanding will serve to better guide cognitive rehabilitation techniques in TBI patients that aim to improve functioning across these cognitive domains. OBJECTIVES/GOALS: 1) Investigate the network level interactions of attention and learning during an attention network task (ANT) and an implicit learning contextual cueing (CC) task. 2) Assess the effect that attention rehabilitation strategies have on behavioral and neural responses pre/post-attentional intervention. METHODS/STUDY POPULATION: This study involves refractory epilepsy patients (rEP) with implanted intracranial electrodes and moderate-to-severe traumatic brain injury (m/sTBI) survivors. In rEP, we are identifying network level modulations of cortical regions via the ANT, which probes components of attention (alerting, orienting, and executive control) and a CC task that probes implicit learning. We hypothesize that modulation of attention and learning can be seen at the neuronal level. In TBI we will assess improvement following two behavioral attention rehabilitation paradigms; and use our results from epileptic patients to guide measurement of treatment-related neuroplastic change via scalp electroencephalography. RESULTS/ANTICIPATED RESULTS: Preliminary behavioral results from the rEP cohort are in line with previous studies and the intracranial data is suggestive of region- and task-specific modulations in memory and attention related systems. Following completion of recruitment, we expect to more concretely identify regions and networks that exhibit modulatory effects associated with attention and implicit learning. Additionally, we anticipate that deficits in attention will be mitigated following training and hypothesize that implicit learning rate will improve in TBI patients as a result of both attentional rehabilitation paradigms. DISCUSSION/SIGNIFICANCE OF FINDINGS: Characterizing intracranial activity in epilepsy patients will give electrophysiology data unattainable in TBI patients. This intracranial perspective will enable us to propose mechanisms of action that may result from our interventions and enable critique of current rehabilitation treatments.

Dissemination and Implementation

24402

Grounded Theory Model for Adherence to Home Exercise among People with a Mobility Disability

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ABSTRACT IMPACT: Future exercise interventions for people with mobility disability should be tailored to the level of the individual and responsive to intervention adherence. A promising area of research is the use of adaptive interventions as a mechanism for tailoring and 'titrating' the intervention based on data obtained during early intervention stages. OBJECTIVES/GOALS: The purpose of the study was to understand adherence to a home-based exercise trial delivered to people with a mobility disability. The objective was to develop a multi-dimensional model for engaging and retaining participants not adhering to an exercise trial by using a grounded theory approach involving both qualitative and quantitative data. METHODS/STUDY POPULATION: An exercise trial utilized telehealth technology to deliver a home-based exercise intervention for adults with a mobility disability. In order to understand factors of adherence to the exercise trial, a mixed methods study design was used involving baseline data and semi-structured interviews. Maximum variation sampling was used to select participants based on level of adherence, gender, race, and functional level. Categorization based on adherence to exercise videos during the first 12 weeks of the intervention included 3 groups: 1) high adherence (≥80% weekly median exercise video minutes viewed), 2) sub-optimal adherence (< 80% but ≥20%), and 3) low adherence (< 20%). Interviews were conducted with 10 participants in each group (n = 30) and data were analyzed using a grounded theory approach. RESULTS/ANTICIPATED RESULTS: A sample of 30 participants from a large pragmatic, home-based exercise trail have completed interviews. All interviews were transcribed and uploaded to NVivo software for coding. Emerging codes include lack of time to exercise, inappropriate exercise intensity, and lack of support for exercise. Using grounded theory approach, results include: 1) identifying risk factors for low adherence to a home-based exercise program delivered to people with mobility disability, 2) discovering themes for not responding to program activities in a home-based exercise program for adults with physical disabilities, and 3) determining the relationships between variables that emerge from thematic and statistical analyses. A model for adherence to home exercises among people with mobility disability will be presented. DISCUSSION/SIGNIFICANCE OF FINDINGS: People with a mobility disability are more susceptible to adopting sedentary lifestyles, which result in poor psychosocial and physical health outcomes. There is a clear and pressing need for designing future home-based exercise interventions with a greater level of customization for participants who have low to non-adherence.

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