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1a injection. On two testing days they completed approx. 40min of aerobic exercise following IFNß-1a injection. On the other testing days, no intervention took place. FLS related muscle aches, chills, temperature change and fatigue were rated and compared from pre-injection to 5 hours post-injection between days with no intervention and days with aerobic exercise.
Preliminary results: 11 PwMS have so far completed all four days of testing, providing data from 44 days of testing. No adverse events in addition to FLS during the study period were reported. On testing days with aerobic exercise, 54.5% of PwMS tested positive for FLS, whereas 77.3% developed FLS on days with IFNß-1a injection only.
Conclusion: Preliminary data suggest that moderate intensity aerobic exercise can reduce the number of PwMS developing FLS following IFNß-1a injection by approx. 50%. Based on these preliminary results approx. 40min of aerobic exercise should be encouraged for PwMS who often experience FLS following IFNß-1a injections.

Topic - Neuromuscular Disorders

Towards intuitive control of active arm supports for men with Duchenne Muscular Dystrophy: A hybrid sEMG-Torque control interface

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Duchenne muscular dystrophy (DMD) is caused by a recessive X-linked mutation, resulting in progressive muscle degeneration and eventual death. While the lifespan of men with DMD increased due to improvements on health care, they still live with severe physical impairments and strong dependency on care. Active arm supports can improve their quality of life, by augmenting their arm's residual motor capabilities. This research aims to develop a control interface, which detects the user's movement intention, required to operate these active arm supports. We propose a hybrid sEMG-torque interface controlling three translations and two rotations of the forearm. The translations are proportionally controlled using the envelopes of sEMG signals from six arm muscles. The two horizontal translations can be controlled simultaneously while the vertical translation is sequentially controlled triggering a sEMG-based switch. The passive interaction torques measured

between the forearm and the active arm support, are used to release two rotations of the forearm, mimicking a gimbal mechanism. A preliminary evaluation of the control method has been carried out with one healthy subject, within a series of two-dimensional and three-dimensional tasks. The performance was evaluated, in terms of path efficiency, task completion rate and time, smoothness, and overshoot. The results indicate that the control method is able to successfully detect the intention of the user and translate it to the intended movement. Furthermore, the combination of sEMG and torque control of the forearm translations and rotations, results in a simple, yet functional controller able to support natural movements of the arm.

Outcomes of a multidisciplinary motor neurone disease service

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Background: Motor neurone disease (MND) is a progressive incurable neuromuscular condition. Multidisciplinary rehabilitation may improve symptom management, maintain functional independence, and maintain quality of life throughout disease progression [1].
Objective: The aim of this paper is to present outcome data from a multidisciplinary outpatient MND rehabilitation service.
Methods: Retrospective medical record audit of all patients managed at the St Joseph's Hospital MND clinic over a 10 year period from 2004 to 2014. St Joseph's is a rehabilitation hospital in Sydney, Australia. The MND multidisciplinary team includes medical (rehabilitation physician, neurologist, and respiratory), nursing (general and palliative care), physiotherapy, occupational therapy, speech pathology, social work, dietician, pastoral care, and outreach.
Results: A total of 213 patients (124 males, 89 females) were managed by the service. Mean survival from initial clinic review was 22.6 months. Disease phenotype numbers included amyotrophic lateral sclerosis (146), flail arm variant (16), frontotemporal dementia (8), primary lateral sclerosis (6), progressive bulbar palsy (4), progressive muscular atrophy (3), and Kennedy's disease (2). Percutaneous endoscopic gastrostomy feeding was organised for 88 patients. Non-invasive ventilation was organised for 43 patients. Common symptom management issues included pain, spasticity, cramps constipation and sialorrhea. Functional issues included mobility, personal care, equipment prescription and driving. Other common issues