Katholieke Universiteit Leuven

Shifting the gear on shifting weight: an analysis of freezing-related balance deficits in advanced PD

The Neuromotor Rehabilitation Research group is embedded in the Department of Rehabilitation Sciences of the Biomedical Sciences Group at the University of Leuven (KU Leuven). The research team is engaged in clinical trials and movement analysis projects related to neuromotor rehabilitation in relation to various conditions most notably to stroke and Parkinson's disease. Both behavioral analysis as well as neuroscientific methodologies are incorporated in our ongoing work. The research team can build upon a solid research infrastructure, including accessibility to scanning facilities, brain stimulation equipment, well-equipped movement analysis laboratories, an extensive international network, recruitment of neurological patients in the University Hospitals Leuven, a stable group of highly talented PhD students and a supportive working environment.

One PhD Student position is available in the neurological unit of the Neuromotor Rehabilitation Research group:
http://gbiomed.kuleuven.be/english/research/50000743/nrrg1/nrrg.htm
This team focuses on understanding the rehabilitation potential of adults with acute and chronic neurological disorders by studying underlying motor control deficits and dysfunctions of neurological systems. This involves translational study which contributes to in-depth insights in the mechanisms of neuroplasticity, relevant for innovation and refinement of rehabilitation interventions. The PhD candidate will be required to adapt a voluntary mediolateral control task of the center of mass in response to a visual tracking (Melba task) on the Caren balance platform. After piloting the protocol in healthy older people, the candidate will be testing the efficacy of technology-based motor learning program in patients with Parkinson's disease with and without postural instability and freezing of gait. We will also test the effects of learning on motor cortex excitability using Transcranial Magnetic Stimulation.

The PhD candidate will be (i) adjusting the training task for use in frail older adults, (ii) and conduct a clinical proof-of-principle training study, with pre-and post-training TMS protocols.

Requirements

- A completed MSc degree in the field of Movement or Rehabilitation Science, Biomedical Sciences, Biomechanics, Neuroscience, Experimental Psychology or other related fields;
- Strong skills in biomechanics and/or neurophysiology
- Excellent skill in data analysis (Matlab) and biomedical statistics
- Good command of the English Language and good English writing skills; Willing to learn Dutch to be able to communicate with patients
- Willing to learn the programming skills to adjust the postural tasks for learning.
- Good communication skills and ability to work with older adults and patients
- Motivation to collaborate in a multidisciplinary and international team.

For additional information please contact:
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General eligibility criteria

- Researchers may be of any nationality.
- Researchers must not have resided or carried out their main activity (work, studies, etc.) in the country of the host for more than 12 months in the 3 years immediately prior to their recruitment.
- Applicants should have less than 4 years of postgraduate research experience

Applications

For more information and to upload your application (CV, letter of interest and contact information for potential references) visit www.keep-control.eu.

Deadline for application: June 30, 2017