AARHUS UNIVERSITY

Press release

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Basic information

Name: Søren Krogh Jensen Email: sokrje@clin.au.dk Phone: +4525342564

Department of: Clinical Medicine

Main supervisor: Helge Kasch, MD, PhD, DMSc

Title of dissertation: Improving recovery of lower limb function in individuals with neurological disorders: emphasis on the effects of magnetic brain stimulation following spinal cord injury

Date for defence: 17-Dec-2021 at (time of day): 14:00 Place: Auditorium, Regional Hospital Viborg, Heiberg Allé 5A (Entrance A, 2nd floor)

Press release (Danish)

Ph.d.-forsvar: Kan man forbedre genoptræningen efter en rygmarvsskade ved at påføre hjernen kraftig magnetisme?

En rygmarvsskade (RS) medfører kroniske komplikationer, såsom tab af bevægeevnen. Et nyt forskningsprojekt har nu undersøgt en i Danmark ikke før benyttet terapiform i forsøg på at forbedre udfaldet af den efterfølgende genoptræningsindsats. Projektet udgår fra Vestdansk Center for Rygmarvsskade i samarbejde med Aarhus Universitet, Health, og er gennemført af Søren Krogh Jensen, der forsvarer det d. 17/12 2021.

Ved at påføre den motoriske hjernebark gentagende, højintens magnetisk stimulation (MS) har det tidligere vist sig muligt at fremkalde ændringer i centralnervesystemet hos personer med en række lidelser, som kan være gavnlige for at genvinde bevægefunktionen. Teknikken er dog endnu ikke grundigt undersøgt som behandlingsform til personer med RS. Igennem tre separate studier dykker ph.d.-projektet nu ned i emnet. Det første studie, et systematisk litteraturstudie, bidrager med viden omkring MS og teknikkens specifikke gavnlige virkninger på bevægefunktion i benene hos personer med neurologiske lidelser, herunder RS. Et tværsnitsstudie identificerer ikke før viste mønstre af muskelsvaghed i benene hos patienter med RS. Derudover diskuteres brugen af mere avancerede målemetoder til at identificere muskelgrupper, som er væsentlige for rehabiliteringen. Slutteligt fremlægges der resultater fra et publiceret studie, hvor MS eller imiteret behandling er blevet påført en gruppe patienter under deres genoptræningsophold med henblik på at forbedre træningsresultaterne og øge forsøgsdeltagernes muskelstyrke og gangfunktion. Forsvaret af ph.d.-projektet er offentligt, og finder sted den 17/12 2021 kl. 14 i Auditorium, Regionshospitalet Viborg, Heiberg Allé 5A (Indgang A, Etage 2), Viborg. Titlen på projektet er ”Improving recovery of lower limb function in individuals with neurological disorders: emphasis on the effects of magnetic brain stimulation following spinal cord injury”. Yderligere oplysninger: Ph.d.-studerende Søren Krogh Jensen, e-mail: sokrje@clin.au.dk, tlf. 25342564.

Bedømmelsesudvalg:

Ulrik Dalgas, cand.scient., ph.d. (Formand)
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Press release (English)

PhD defence: Can magnetic brain stimulation be used to improve rehabilitation outcomes following spinal cord injury?

A spinal cord injury (SCI) causes chronic complications, such as loss of mobility. A new research project has investigated an unrecognized form of therapy in an attempt to improve the outcome of the subsequent rehabilitation effort. The project is originating from the Spinal Cord Injury Centre of Western Denmark in collaboration with Aarhus University, Health, and was carried out by Søren Krogh Jensen who will defend his dissertation on 17/12 2021

By applying repetitive, high-intense magnetic stimulation (MS) to the motor cerebral cortex, it has previously been shown possible to induce changes in the central nervous system in individuals with a range of disorders which may be beneficial for regaining locomotor functioning. However, the technique has not been thoroughly studied as a form of treatment for individuals with SCI. Based on the framework of three separate studies, the PhD project seeks to shed further light on the topic. The first study, a systematic literature review, contributes new knowledge about MS and the specific beneficial effects of the technique on recovery of leg functioning in people with neurological disorders, including SCI. In a cross-sectional study, a previously undiscovered pattern of muscle weakness in the leg muscles of patients with SCI is identified; in addition, the use of more advanced assessment methods to identify muscle groups that are essential for the rehabilitation effort is discussed. Finally, results from a published randomized, controlled study are presented, where MS or imitated ("sham") treatment has been applied to a group of patients during their rehabilitation, in order to improve the training results and increase the participants' muscle strength and gait function. The defence is public and takes place on 17th Dec 2021 at 14:00 in Auditorium, Regional Hospital Viborg, Heiberg Allé 5A (Entrance A, 2nd floor), Viborg, Denmark. The title of the project is "Improving recovery of lower limb function in individuals with neurological disorders: emphasis on the effects of magnetic brain stimulation following spinal cord injury". For more information, please contact PhD student Søren Krogh Jensen, email: sokrje@clin.au.dk, Phone +45 2534 2564.

Assessment committee:

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