

Symposium Title: Electrostimulation in neurorehabilitation

Organizer:

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Symposium Description:

Electrostimulation is a type of neuromodulation focused on electrical impulses, encompassing innovative technologies, such as functional electrical stimulation (FES) and wearable suits. Currently, this is transforming neurorehabilitation for individuals with neurological disorders. These approaches leverage targeted electrical currents to activate or modulate neural pathways, often acting together with other devices (exoskeletons, robotics, virtual reality, sensorial stimulation) in a multimodal approach, thereby facilitating motor recovery, improving functional outcomes, and enhancing neural plasticity.

This symposium will showcase advancements, clinical and home-based applications, and future scenarios of electrostimulation in enhancing autonomy and societal participation for individuals with neurological conditions.

Questions explored during this symposium:

Which are the possibilities of using functional electrical stimulation in neurorehabilitation practice and research?

How does a neuromodulation suit work?

Is the use of a neuromodulation suit feasible and effective in reducing spasticity and ataxia and improving motor function in people with multiple sclerosis?

Rationale and relevance of Symposium

By bridging the gap between physical impairments and real-world functionality, electrostimulation interventions enable individuals to achieve meaningful improvements in activity and participation, ultimately improving quality of life. Integrating these technologies into rehabilitation programs provides personalized, adaptable solutions to address the unique challenges of complex neurological conditions. In some cases, depending on the type and compliance of patients and their care-givers, therapeutic devices can be also used at home and thus in everyday life, becoming "aids" for activities of daily living execution.

Learning Objectives:

To gain insight in opportunities and challenges of using functional electrical stimulation in neurorehabilitation clinical practice and research.

To learn how a neuromodulation suit is working and how it is worn by users.

To explore the (preliminary) efficacy of using a full-body neuromodulation suit in people with multiple sclerosis in clinical and home setting.

To exchange experiences in using electrostimulation.

Proposed Speakers & Presentations:

Speaker 1: Dr. Alessandro Specchia (Como Valduce Hospital - Villa Beretta Rehabilitation Center, Italy) (35')

Presentation Title: Functional electrical stimulation in neurorehabilitation: opportunities and challenges for clinical practice and research

Speaker 2: Dr. Andreas Hahn (Otto Bock Healthcare Products GmbH, Viena, Austria) (10')

Presentation Title: Demonstration of neuromodulation suit

Speaker 3: Prof. Lars Hvid (Danish MS Hospitals Ry and Haslev & Aarhus University, Denmark) (15')

Presentation Title: The use of full-body neuromodulation suits in people with multiple sclerosis: a randomized clinical trial

Speaker 4: Prof. Daphne Kos (National MS Center Melsbroek & KU Leuven, Belgium) (15')

Presentation Title: Using neuromodulation suits in daily life

Interactive discussion and sharing experiences (15')