

From biological basis to ecological implications of rehabilitation in MS

TUESDAY, 27 JUNE 2023

- 09.00** **Welcome and Introduction**
- 09.20 - 09.50** **Lecture 1: Biological bases of neurorehabilitation**
G. Comi (Milan, IT)
- 09.50 - 11.10** **Session 1: Rehabilitation in MS: the point of view of Biology**
Chair: P. Feys (Hasselt, BE)
- 09.50 Motor rehabilitation and Brain plasticity: the evidence in MS
M. Bove (Genoa, IT)
- 10.10 Physical activity and Brain plasticity in MS
U. Dalgas (Aarhus, DK)
- 10.30 Cognitive rehabilitation and Brain plasticity: the evidence in MS
M. P. Amato (Florence, IT)
- 10.50 Discussion / Q&A
- 11.10 - 11.40** **Coffee Break**
- 11.40 - 13.00** **Session 2: Measuring MS**
Chair: G. Giovannoni (London, UK)
- 11.40 Wearable technologies to measure clinical outcomes in MS
J. Chataway (London, UK)
- 12.00 Trends in the field of machine learning: challenges for future trials
G. Nagels (Brussels, BE)
- 12.20 Ecological measures of motor domain and their clinical implications
L. Pedullà (Genoa, IT)
- 12.40 Discussion / Q&A

- 13.00 - 14.00** **Lunch Break**
- 14.00 - 15.40** **Practical session – Workshop 1-3
(3 rotating groups, 50 minutes each)**
- Workshop 1: Outcome measures in MS: focus on motor and cognitive Performance Measure
Chairs: L. Moundjian (Diepenbeek, BE), R. das Nair (Trondheim, NO)
Facilitators: L. Pedullà (Genoa, IT), L. Hvid (Aarhus, DK), J. Podda (Genoa, IT)
- Workshop 2: Outcome measures in MS: focus on administering patient reported outcomes
Chair: G. Bricchetto (Genoa, IT)
Facilitators: D. Kos (Leuven, BE), M. Monti Bragadin (Genoa, IT)
- Workshop 3: Measuring MS with wearables and smart devices
Chair: L. Leocani (Milan, IT)
Facilitators: A. Tacchino (Genoa, IT), A. Kalron (Tel-Aviv, ISR), V. Block (San Francisco, US), V. Bergamaschi (Genoa, Italy)
- 15.40 - 16.10** **Coffee Break**
- 16.10 - 17.00** **continuing of practical session – Workshop 1-3**
- 17.00 - 18.00** **Interactive discussion**
Feedback from Workshop groups, Chairs and Facilitators
- 18.00 - 18.20** **Conclusions of Day One**
- 19.30** **Dinner at the hotel**

WEDNESDAY, 28 JUNE 2023

- 09.00 - 09.30** **Lecture 2: How has technology changed the perspective of people with neurological conditions?**
P. Feys (Hasselt, BE), P. van Galen (Overijse, BE)
- 09.30 - 10.50** **Session 3: Rehabilitation in MS: technology driven rehab**
Chair: L. de Michieli (Genoa, IT)
- 09.30 Rehabilitative robotic in MS for upper limb
G. Barresi (Genoa, IT)
- 09.50 Robotic Exoskeleton for gait rehabilitation in MS
S. Maludrottu (Genoa, IT)
- 10.10 Assistive robotic in MS
L. Masia (Heidelberg, DE)
- 10.30 Discussion / Q&A
- 10.50 - 11.20** **Coffee Break**
- 11.20 - 12.20** **continuing of Session 3: Rehabilitation in MS: technology driven rehab**
Chair: L. de Michieli (Genoa, IT)
- 11.20 Virtual Reality in MS
G. Barresi (Genoa, IT)
- 11.40 Focus on Telerehabilitation in MS
A. Tacchino (Genoa, IT)
- 12.00 The role of transcranial magnetic stimulation in MS rehabilitation
L. Leocani (Milan, IT)
- 12.20 - 12.40** **Debate Session: Is Telerehabilitation an effective strategy for improving quality of life of people with MS?**
Moderator: D. Kos (Leuven, BE)
Discussants: A. Tacchino (Genoa, IT), A. Kalron (Tel-Aviv, ISR), J. Pöttgen (Hamburg, DE), P. van Galen (Overijse, BE)
- 12.40 - 14.00** **Lunch Break**

14.00 - 15.40

**Practical session – Workshop 4-6
(3 rotating groups, 50 minutes each)**

Workshop 4: MS Rehabilitation: focus on robotics

Chair: L. de Michieli (Genoa, IT)

Facilitators: L. Masia (Heidelberg, DE), J. Jonsdottir (Milan, IT)

Workshop 5: Devices for home-based rehabilitation

Chair: A. Kalron (Tel-Aviv, ISR)

Facilitators: A. Tacchino (Genoa, IT), J. Podda (Genoa, IT)

Workshop 6: Virtual reality and MS rehabilitation

Chair: G. Barresi (Genoa, IT)

Facilitators: V. Prada (Genoa, IT), E. Swinnen (Brussels, BE)

15.40 - 16.10

Coffee Break

16.10 - 17.00

continuing of practical session – Workshop 4-6

17.00 - 18.00

Interactive discussion

Feedback from Workshop groups, Chairs and Facilitators

18.00 - 18.20

Conclusions of Day Two

20.00

Summer School Dinner

THURSDAY, 29 JUNE 2023

- 08.30 - 08.50** **Lecture 3: Recent advances in clinical trial design: focus on the use of digital markers**
H.P. Hartung (Düsseldorf, DE)
- 08.50 - 09.10** **Lecture 4: Personalizing treatment by identifying differential responders and their characteristics in clinical trials**
M. P. Sormani (Genoa, IT)
- 09.10 - 09.30** **Lecture 5: Considerations when designing the control group and intervention in rehabilitation: tool development in SRRR (stroke recovery and rehabilitation round table**
P. Feys (Hasselt, BE)
- 09.30 - 11.00** **Working groups – (3 working groups)**
Participants will work in 3 working groups (A, B, C)
- Working group A: Designing a research protocol for evaluating the effectiveness of rehabilitation (including biological/psychological base)**
Chair: D. Kos (Leuven, BE)
Facilitators: L. Leocani (Milan, IT), L. Hvid (Aarhus, DK)
- Working group B: Designing a research protocol for evaluating effectiveness of rehabilitation with digital biomarkers**
Chair: G. Brichetto (Genoa, IT)
Facilitators: J. Podda (Genoa, IT), G. Barresi (Genoa, IT)
- Working group C: Decentralised clinical trials in rehabilitation**
Chair: R. das Nair (Trondheim, NO)
Facilitators: L. Pedullà (Genoa, IT), L. Moumdjian (Diepenbeek, BE)
- 11.00 - 11.15** **Coffee Break**
- 11.15 - 12.30** **Interactive discussion**
Feedback from working groups
Definition of a common draft protocol
- 12.30 - 12.45** **Farewell**
- As of 12.45** **Lunch and individual departure**