

COST Action TD 1006

# European Network on Robotics for NeuroRehabilitation

2011 | 2015

## Objectives

- The main objective of the action is to enable the development of innovative, efficient, and patient-tailored robot-assisted therapies for neuromotor recovery, incorporating the latest findings from clinical neurorehabilitation, rehabilitation robotics, computational neuroscience and motor neuroscience
- Promote the use of rehabilitation robots in clinics and therapy centers
- Advance research concerning mechanisms and models of motor recovery
- Coordinate the development of future rehabilitation robots

## Main Achievements

### Scientific outputs obtained due to networking:

- 9 new multi-national/EU RTDs and 26 National projects have been started in the first Action year
- Action partners organized 6 joint workshops at international conferences, published 196 articles related to Action topics, out of that 66 as joint publications.
- In two Action workshops (Zurich and Southampton) the network has started guideline activities and a future rehabilitation robotic research roadmap

### Capacity building due to networking:

- Training School co-organized in Salamanca with IEEE and Spanish National project Hyper, 80 student participants, 15 teachers, 70% from Action countries, Topic: Emerging Technologies for Neurorehab
- A concerted action plan was established with International Consortium of Rehabilitation Robotics (ICoRR) and a joint collaboration with the International Industry Society of Advanced Rehabilitation Technology (IISART) in the area of health economics and education has been started.
- Action members are actively participating in the definition of the finalist FET-Fagship Robotic Companions and the Ageing Horizon2020 PPP.

[www.cost.eu/bmbs](http://www.cost.eu/bmbs)**Biomedicine and Molecular Biosciences (BMBS)**

### Participating countries

BE, CH, DE, DK, ES, FI, FR, GR, HU, IE, IS, IT, LU, MK, MT, NL, RO, RS, SI, TR, UK

### Contact details

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#### Website

[www.rehabilitationrobotics.eu](http://www.rehabilitationrobotics.eu)

Figure 1: The Lokomat rehabilitation robot improves the efficiency of treadmill training



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## Working Group activities

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### Working Group 1: Clinical application

- The main objective of WG1 is to formulate clear, evidence-based guidelines for the clinical application of rehabilitation robots.
- A second objective of WG1 is to describe how robot-aided assessment can be used to generate clinically accepted performance measures.
- The third objective of the Working Group is to give recommendations for the development of future rehabilitation robots from a clinical point of view.

### Working Group 2: Technology development

- The main objective of WG2 is to recommend directions for future efforts in the technological development of rehabilitation robots.
- A second objective of WG2 is to catalogue robots for neurorehabilitation according to activity performed (e.g. walking, reaching, standing, and hand function) and key technological parameters

### Working Group 3: Motor recovery models

- The main objective of WG3 is to advance the theoretical understanding and modeling of motor recovery.
- A second objective of WG3 is to promote basic research on theoretical modeling of motor recovery and motor learning.

### Working Group 4: Neurophysiological mechanisms of motor recovery

- The main objective of this Working Group is to advance the understanding of motor recovery from an experimental point of view.
- A second objective of this Working Group is to make a number of datasets recorded from patients available on the Action website.

### Industry participation

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Figure 2: Armaassist, a new advanced rehabilitation robotic platform for Tele-rehabilitation.



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