Residential course on rehabilitation in multiple sclerosis
6-7 October 2016 - Valens, Switzerland
Residential course on rehabilitation in multiple sclerosis

Overview
This residential course is designed for neurologists, physiotherapists and physiatrists willing to learn about the most advanced neurorehabilitation techniques in multiple sclerosis (MS). Participants will learn about the metrics for the assessment of functioning in MS in order to plan a personalised and goal oriented rehabilitation programme. The second part of the course will address the evidence based therapeutic interventions for motor, cognitive and social rehabilitation. The residential programme will be held in the Klinik Valens which is a leading international academic training centre equipped with all the forefront technologies including a thermal swimming pool. Participants will have the unique opportunity to join the team of highly trained specialists in their everyday activities for practical training sessions.

Learning objectives
By attending this live educational course, participants will be able to:
• Illustrate the biological basis of neurorehabilitation
• Describe the main metrics for the assessment of motor disability in MS
• Plan personalized rehabilitation programmes

Target audience
Neurologists, physiatrists, rehabilitation therapists currently involved in MS rehabilitation management.

Chair
Jürg Kesselring
Department of Neurorehabilitation
Rehabilitation Centre
Valens, Switzerland

Co-Chair
Peter Feys
Rehabilitation Sciences and Physiotherapy
University of Hasselt
Campus Diepenbeek
Agoralaan
Diepenbeek, Belgium

EXCEMED designed this programme in partnership with Valens Klinik.

Endorsed by RIMS
RIMS “Rehabilitation in Multiple Sclerosis” is an international non-profit organization that was founded in 1991. It is an European network for best practice and research, bringing together health care professionals, researchers and MS societies.
CME Provider
EXCEMED is a non profit foundation dedicated, since the last four decades, to the development of high-quality medical education programmes all over the world.

EXCEMED adheres to the guidelines and standards of the European Accreditation Council for Continuing Medical Education (EACCME®) which states that continuing medical education must be balanced, independent, objective, and scientifically rigorous.

Continuing medical education
The EXCEMED “Residential course on rehabilitation in multiple sclerosis” is accredited by the European Accreditation Council for Continuing Medical Education (EACCME®) to provide the following CME activity for medical specialists. The EACCME® is an institution of the European Union of Medical Specialists (UEMS), www.uems.net

The CME “Residential course on rehabilitation in multiple sclerosis” held on 6-7 October 2016 in Valens, Switzerland, is designated for a maximum of 11 (eleven) hours of European external CME credits (ECMEC). Each medical specialist should claim only those hours of credit that he/she actually spent in the educational activity.

Through an agreement between the European Union of Medical Specialists and the American Medical Association, physicians may convert EACCME® credits to an equivalent number of AMA PRA Category 1 Credits™. Information on the process to convert EACCME® credit to AMA credit can be found at www.ama-assn.org/go/internationalcmep.

Live educational activities, occurring outside of Canada, recognized by the UEMS-EACCME® for ECMEC credits are deemed to be Accredited Group Learning Activities (Section 1) as defined by the Maintenance of Certification Program of The Royal College of Physicians and Surgeons of Canada.

EXCEMED adheres to the principles of the Good CME Practice group (gCMEp).
General information

This live educational course takes place at:
**Multiple Klinik Valens Rehabilitationszentrum**
CH-7317 Valens, Switzerland
E-mail: info@klinik-valens.ch

**Language**
The official language of this live educational course is English.

**CME Provider**
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Project Manager: Giorgia Di Egidio
T +39 06 88 595 232 - F +39 06 88595 234
giorgia.diegidio@meridiano.it
Thursday, 6 October 2016

<table>
<thead>
<tr>
<th>Time</th>
<th>Session I</th>
<th>Session II</th>
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<tbody>
<tr>
<td>08.45</td>
<td>Opening and introduction to the course</td>
<td>The assessment of functioning and</td>
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<tr>
<td></td>
<td>G. Comi (Italy) - P. Feys (Belgium)</td>
<td>patient-oriented rehabilitation programme</td>
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<tr>
<td>09.00</td>
<td>Introduction to MS rehabilitation center</td>
<td>Chairs: P. Feys (Belgium) - J. Kesselring (Switzerland)</td>
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<td>of Valens J. Kesselring (Switzerland)</td>
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<tr>
<td></td>
<td><strong>Session I</strong></td>
<td><strong>Session II</strong></td>
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<tr>
<td></td>
<td>Biological basis of neurorehabilitation</td>
<td><strong>Session III</strong></td>
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<td></td>
<td>Chairs: P. Feys (Belgium) - J. Kesselring (Switzerland)</td>
<td>The assessment of functioning and patient-oriented rehabilitation programme</td>
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<tr>
<td>09.15</td>
<td>L1: From neurorehabilitation to neuroplasticity and viceversa</td>
<td>Chairs: P. Feys (Belgium) - J. Kesselring (Switzerland)</td>
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<td></td>
<td>G. Comi (Italy)</td>
<td>Cognitive functioning</td>
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<tr>
<td>09.45</td>
<td>L2: Molecular and physical benefits of exercise in multiple sclerosis</td>
<td>14.00 L5: Cognitive impairment profile and mood disturbances M.P. Amato (Italy)</td>
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<td></td>
<td>J. Kesselring (Switzerland)</td>
<td>14.30 L6: Neuropsychological tests batteries D. Langdon (UK)</td>
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<tr>
<td>10.15</td>
<td>Coffee break</td>
<td>15.00 L7: Cognitive rehabilitation aims and approaches P. Hämäläinen (Finland)</td>
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<td></td>
<td><strong>Session II</strong></td>
<td>15.30 CC1: Clinical cases and practical exercises with cognitive assessment and rehabilitation platforms P. Hämäläinen (Finland) D. Langdon (UK)</td>
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<td></td>
<td>Motor functioning and balance</td>
<td>16.20 Coffee break</td>
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<tr>
<td>10.45</td>
<td>S1: Balance assessments by MS</td>
<td>16.40 Visit to Valens Klinik premises</td>
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<td>C. Meier Khan (Switzerland)</td>
<td>17.30 End of the first day</td>
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<tr>
<td>11.05</td>
<td>S2: Gait and Walking Assessments by MS</td>
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<td>Y. Vila (Switzerland)</td>
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<tr>
<td>11.25</td>
<td>S3: Technical aids by MS</td>
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<td>C. Meier Khan (Switzerland)</td>
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<tr>
<td>11.45</td>
<td>L3: Upper and lower limbs motor rehabilitation aims and approaches</td>
<td>14.00 L5: Cognitive impairment profile and mood disturbances M.P. Amato (Italy)</td>
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<td>P. Feys (Belgium)</td>
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<tr>
<td>12.15</td>
<td>L4: Aquatic therapy</td>
<td>14.30 L6: Neuropsychological tests batteries D. Langdon (UK)</td>
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<td>U. Gamper (Switzerland)</td>
<td>15.00 L7: Cognitive rehabilitation aims and approaches P. Hämäläinen (Finland)</td>
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<tr>
<td>12.45</td>
<td>Lunch</td>
<td>15.30 CC1: Clinical cases and practical exercises with cognitive assessment and rehabilitation platforms P. Hämäläinen (Finland) D. Langdon (UK)</td>
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**Legend:**  L: Lecture;  S: Snapshot;  CC: Clinical Cases;
Friday, 7 October 2016

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<thead>
<tr>
<th>Session IV</th>
<th>The assessment of functioning and patient-oriented rehabilitation programme</th>
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<tr>
<td><strong>Chairs:</strong> P. Feys (Belgium) - J. Kesselring (Switzerland)</td>
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<tr>
<td><strong>08.30</strong> L8:</td>
<td>Role of occupational therapy</td>
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<td>J. Ebert (Switzerland)</td>
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<td><strong>09.00</strong> L9:</td>
<td>Fatigue management</td>
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<td>A. Weise (Switzerland)</td>
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<tr>
<th>Session V</th>
<th>The assessment of functioning and patient-oriented rehabilitation programme</th>
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<tr>
<td><strong>Chairs:</strong> P. Feys (Belgium) - J. Kesselring (Switzerland)</td>
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<tr>
<td><strong>09.30</strong> L10:</td>
<td>Pelvic rehabilitation</td>
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<tr>
<td>R. Althof (Switzerland)</td>
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<tr>
<td><strong>10.00</strong> L11:</td>
<td>Dysphagia and swallowing rehabilitation</td>
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<td>S.J. Albert (Switzerland)</td>
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<td><strong>10.30</strong> L12:</td>
<td>Speech disturbances and rehabilitation</td>
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<td>S. Feil (Switzerland)</td>
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<td><strong>11.00</strong></td>
<td>Coffee break</td>
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<tr>
<th>Session VI</th>
<th>Shared decision in rehabilitation</th>
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<tr>
<td><strong>Chairs:</strong> P. Feys (Belgium) - J. Kesselring (Switzerland)</td>
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<tr>
<td><strong>11.30</strong> L13:</td>
<td>Psychosomatic medicine and social factors</td>
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<tr>
<td>V. Kesselring (Switzerland)</td>
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<tr>
<td><strong>12.00</strong> L14:</td>
<td>Patient reported outcomes (PROs)</td>
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<td>A. Solari (Italy)</td>
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<tr>
<td><strong>12.30</strong> L15:</td>
<td>ICF core set</td>
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<tr>
<td>A. Weise (Switzerland)</td>
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<tr>
<td><strong>13.00</strong></td>
<td>Lunch</td>
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<tr>
<th>Session VII</th>
<th>Advanced neurorehabilitation</th>
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<td><strong>Chairs:</strong> P. Feys (Belgium) - J. Kesselring (Switzerland)</td>
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<tr>
<td><strong>14.00</strong> S4:</td>
<td>Sport therapy</td>
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<td>J. Bansì (Switzerland)</td>
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<td><strong>14.20</strong> S5:</td>
<td>Hippotherapy</td>
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<td>A. Artuso (Italy)</td>
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<tr>
<td><strong>14.40</strong> CC2:</td>
<td>Clinical cases about advanced neurorehabilitation, including an overview about how to plan an integrated rehabilitation programme</td>
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<td>J. Kesselring (Switzerland)</td>
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<td>C. Meier Khan (Switzerland)</td>
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<tr>
<td><strong>15.40</strong></td>
<td>Final discussion and meeting wrap up</td>
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<tr>
<td><strong>16.30</strong></td>
<td>End of the course</td>
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Disclosure of faculty relationships

EXCEM ED adheres to guidelines of the European Accreditation Council for Continuing Medical Education (EACCME®) and all other professional organizations, as applicable, which state that programmes awarding continuing education credits must be balanced, independent, objective and scientifically rigorous. Investigative and other uses for pharmaceutical agents, medical devices and other products (other than those uses indicated in approved product labeling/package insert for the product) may be presented in the programme (which may reflect clinical experience, the professional literature or other clinical sources known to the presenter). We ask all presenters to provide participants with information about relationships with pharmaceutical or medical equipment companies that may have relevance to their lectures. This policy is not intended to exclude faculty who have relationships with such companies; it is only intended to inform participants of any potential conflicts so that participants may form their own judgements, based on full disclosure of the facts. Further, all opinions and recommendations presented during the programme and all programme-related materials neither imply an endorsement nor a recommendation on the part of EXCEM ED. All presentations represent solely the independent views of the presenters/authors.

The following faculty provided information regarding significant commercial relationships and/or discussions of investigational or non-EMEA/FDA approved (off-label) uses of drugs:

- **Sylvan J. Albert** Declared no potential conflict of interests.
- **Rixt Althof** Declared no potential conflict of interests.
- **Maria Pia Amato** Declared receipt of grant and contracts from Teva. She also declared receipt of honoraria or consultation fees from: Biogen, Teva, Merck Serono, Genzyme, Almirall, Novartis and to be member of a company advisory board, board of directors or other similar group: Biogen, Merck Serono.
- **Antonella Artuso** Declared no potential conflict of interests.
- **Jens Bansì** Declared no potential conflict of interests.
- **Giancarlo Comi** Declared receipt of honoraria or consultation fees: Excemed, Merck, Novartis, Teva, Sanofi, Genzyme, Biogen, Roche, Almirall Chugai, Receptos, Forward Pharma.
- **Juliane Ebert** Declared no potential conflict of interests.
- **Sarah Feil** Declared no potential conflict of interests.
- **Peter Feys** Declared receipt of honoraria or consultation fees from Teva. He also declared to be member of a company advisor board, board of directors or other similar group: Biogen-idec and participation in a company sponsored speaker’s bureau: Excemed.
- **Urs N. Gamper** Declared no potential conflict of interests.
- **Päivi Hämäläinen** Declared receipt of honoraria or consultation fees from Novartis.
- **Jürg Kesselring** Declared no potential conflict of interests.
- **Verena Kesselring** Declared no potential conflict of interests.
- **Dawn Langdon** Declared receipt of grant and contracts from: Teva, Biogen, Novartis, Bayer. She also declared receipt of honoraria or consultation fees from: Biogen, Teva, Merck Serono, Almirall, Novartis, Roche and participation in a company sponsored speaker’s bureau: Roche, Biogen, Bayer, Almirall, Novartis, Merck, Teva.
- **Christine Meier Khan** Declared no potential conflict of interests.
- **Alessandra Solari** Declared receipt of honoraria or consultation fees from: Almirall, Merck Serono, Novartis, Senofi, Genzym, Teva. She also declared to be member of a company advisor board, board of directors or other similar group: Biogen-idec, Merck Serono, Novartis.
- **Andrea Weise** Declared receipt of grant and contracts: research grants of EVS (occ.therap. assoc. CH), stiftung ergotherapy and MS association CH.

The following faculty have provided no information regarding significant relationship with commercial supporters and/or discussion of investigational or non-EMEA/FDA approved (off-label) uses of drugs as of 28 September 2016.

- **Yasmin Vila**
Biographies
Sylvan J. Albert is Head of the Division of Neurology and Stroke Unit at Kantonsspital Graubünden. He is Senior Consultant at Kliniken Valens Rehabilitationcenter, Switzerland. He completed his Medical Studies and Neurological Fellowship at the Universities of Essen (D), Düsseldorf (D), Witten Herdecke (D) and Bern (CH).

Rixt Althof works as physiotherapist and continence therapist at the Rehabilitation Centre in Valens, Switzerland. She spent her career in the pediatric, neurologic and geriatric departments of diverse hospitals in the Netherlands. During the last 24 years she was able to participate in the development of a treatment-protocol for the neurological patients with an overall good and rewarding outcome, especially in Quality of Life.
Maria Pia Amato obtained her medical degree at the University of Florence (Italy) in 1983 and became a Board Certified Neurologist in 1987. She received a specific training in clinical epidemiology as a Research Fellow at the Johns Hopkins University, Baltimore (USA) and at the Erasmus University, Rotterdam (The Netherlands). She is Associate Professor of Neurology since 2004 and responsible for the MS Unit at the Department NEUROFARBA, Section of Neurosciences, University of Florence. Currently, she is member of the Executive Committee of the European Committee for Treatment and Research on Multiple Sclerosis (ECTRIMS). She is actively involved in clinical research on MS, at both the national and international level, with focus on treatment, clinical epidemiology and neuropsychology of MS and has published more than 200 scientific papers in peer reviewed journals.

Antonella Artuso graduated in Physiotherapy and then in Medicine at the Università degli Studi of Milan presenting a thesis which dealt with the role of Equestrian Rehabilitation in the disease of Autism. Specialized in Physical and Rehabilitative Medicine and in Therapy by means of Horse at the National Italian Association of Equestrian Rehabilitation (A. N. I. R. E.), since 1997 she’s been working in the department of Physical and Rehabilitative Medicine of Don Carlo Gnocchi Foundation of Milan. Since 1998 she’s been working at the Institute for Blind People of Milan by being in charge of the Rehabilitation Therapies for people admitted in the Residential House. From 1998 to 2013 Antonella Artuso has been the doctor in charge of the Equestrian Rehabilitation Service of Don Carlo Gnocchi Foundation. She teaches at the A. N. I. R. E. Association and she’s part of the board of directors of the Master Course Educational and Rehabilitative Intervention helped by Animal provided by Università Cattolica del Sacro Cuore of Milan.
Jens Bansi studied exercise science with primary focus on rehabilitation of neurological disorders at the German Sports University in Cologne, Germany where he also achieved his PhD in cellular and molecular sports medicine. Since 12 years he works for the Kliniken-Valens. His therapeutic work involves reconditioning for adults with orthopedic, rheumatological or neurological disorders in aquatic- or overland settings. The research projects mainly focus the impacts of training on cardiorespiratory fitness and links the higher fitness levels with better cognitive and immune functions in persons with multiple sclerosis.

Giancarlo Comi is Professor of Neurology, Chairman of the Department of Neurology, and Director of the Institute of Experimental Neurology at Vita-Salute San Raffaele University, Milan, Italy. He is also President of the European Charcot Foundation (ECF), a member of the Board of Administration of the Italian Multiple Sclerosis Foundation and of the Scientific Committee of Associazione Italiana Sclerosi Multipla, Co-Chair of the Scientific Steering Committee of the Progressive MS Alliance, and a fellow of the European Academy of Neurology (EAN). He has served as a past president of the European Neurology Society, the Italian Society of Clinical Neurophysiology, and the Italian Society of Neurology. In recent years, Professor Comi has received the "Gh. Marinescu" honorary award from the Romanian Society of Neurology, and has been awarded honorary memberships of the Russian Neurological Academic Society, the European Committee for Treatment and Research in Multiple Sclerosis (ECTRIMS), the European Neurological Society (ENS) and the Sociedad Espanola de Neurologia. He also received the Charcot Award for MS Research from the MS International Federation (MSIF) in 2015. Most recently, Professor Comi was awarded the Gold Medal of “Benemeranza Civica” from the City of Milan. Prof. Comi has authored and co-authored more than 1000 articles in peer-reviewed journals, and edited several books. He has been the invited speaker for more than 450 conferences, both nationally and internationally. He sits on the executive boards of various scientific associations and on the editorial boards of Clinical Investigation, European Journal of Neurology and Multiple Sclerosis. He is also the Associate Editor of the Neurological Sciences.
Biographies

Juliane Ebert
Department of Neurorehabilitation
Valens Clinic Rehabilitation Center
Valens, Switzerland

Juliane Ebert studied Occupational Therapy at SRH Fachschule für Ergotherapie in Karlsbad-Langensteinbach, Germany and since 2015 she’s attending the Msc cand. in Neurehabilitation in Krems, Austria. Since 2013 she’s part of the Rehabilitation team of Kliniken-Valens. Juliane Ebert has been author of the published Ergopraxis (Ebert J., Hamilton L. Im Einhand-Modus - 04/2015).

Sarah Feil
Klinische Linguistin M.Sc.
Valens Clinic Rehabilitation Center
Valens, Switzerland

Sarah Feil studied at the University of Bielefeld, where she got a Bachelor of Science in 2009 and a Master of Science in 2012, both in Klinische Linguistik. For her Master Thesis she did a study about the influence of intensity of emotional prosodic information on emotion recognition of children with Asperger’s syndrome. She worked as a caregiver, mostly in the Von Bodelschwing’sche Stiftungen Bethel, Bielefeld, Germany, a large medical and social institution for persons with epilepsy and various disabilities. Since 2012 she’s been working as a speech and language pathologist in a neurology rehabilitation centre in eastern Switzerland: Klinik Valens, helping people in therapy to reach their individual goals and also carrying out scientific research – e.g. a study of bihemispheric tDCS (transcranial direct-current stimulation) in people with post-acute aphasia after stroke, together with Dr. Mylius and other colleagues. Mrs Feil have always been intrigued by the diversity of the members of society and by the topic of inclusion.
Peter Feys is Professor Rehabilitation Sciences and Physiotherapy. Master in Physiotherapy (1994), with additional specialization in neurological rehabilitation (1995) and PhD in Rehabilitation Sciences and Physiotherapy (2004). Peter Feys has clinical, educational and scientific experience in the treatment of patients with neurological deficits in general, and Multiple Sclerosis (MS) in specific. He worked as clinical therapist in Bürgerspital Solothurn (CH), the University Hospitals Leuven and the National MS Centre in Melsbroek. MS Research is performed since 1998 at the National MS Centre Melsbroek and later on the "Katholieke Universiteit Leuven"; funded by European projects, WOMS (Flemish MS Society) and the Fund for Scientific Research, Flanders. Peter Feys is currently Professor at the University of Hasselt, and is part of the REVAL rehabilitation research institute within BIOMED. He is responsible for the master program in "Rehabilitation Sciences and Physiotherapy". Research is focusing on assessment and rehabilitation for gait and upper limb function, motor fatigue, motor imagery, upper limb rehabilitation including the use of technology [www.I-TRAVLE.eu] and community self-directed training in persons with neurological conditions [multiple sclerosis as focus added with co-work in stroke and Parkinson disease]. Since recently, neuro-imaging is performed within translational research collaborations to understand the potential of neuroplasticity in neurodegenerative diseases. Internationally, he is President of R.I.M.S. [stands for Rehabilitation in MS, an European network of best practice and research, www.euRIMS.org], after being Chairman of the Special Interest Group on Mobility from 2008 till 2011. He serves as management committee member in the COST action TD1006 [European Network on Robotics for NeuroRehabilitation, 2011-15] and is part of the scientific committee of the Italian MS Society [AISM/FISM]. He is editorial board member of "Multiple Sclerosis Journal". Nationally, he is secretary of "Move to Sport" [www.movetosport.be] and member of the "MS Steunfonds" [MS Society Flanders]. Peter Feys has published 80 peer reviewed articles in international clinical neurological, imaging and rehabilitation journals.

Urs N. Gamper since 1990 is head of Therapy Department of Valens Clinic, Rehabilitation Centre, CH-Valens and member of the executive board of Valens Clinics, Rehabilitation Centre, CH-Valens since 2004. The major interest of his studies is the aquatic therapy in the fields of neurological and musculoskeletal disorders in adults. Urs N. Gamper has been honored with prizes and recognitions: 2010 Physiotherapy Association Switzerland, 2012 Swiss Leag against Rhumatism and 2014 Health Professionals in Rheumatology Switzerland.
Biographies

Päivi Hämäläinen
Masku Neurological Rehabilitation Centre
Masku, Finland

Päivi Hämäläinen works as a neuropsychologist in Masku Neurological Rehabilitation Centre since 1990 (neuropsychological assessments, counselling and rehabilitation) and as head psychologist since 1999. Clinical and research supervisor for several neuropsychologists working with MS patients or making scientific work on cognitive impairments in MS and other neurological diseases. Supervisor in Lic. studies: Seinelä Arja, Helin Pia, Rosti-Otajärvi Eija, Multanen Johanna, Okker Elina, Huolman Sini, Hänkämäki Elin, Liuhu Sanna, Ikonen Anna, Suomalainen Susanna, Mantynen Anu, Elina Castrén, Kati Mäkinen. Supervisor in PhD studies: Rosti-Otajärvi Eija [PhD], Hirmanen Leena [PhD], Huolman Sini, Saarenketo Anna-Riitta, Liuhu Sanna. Official opponent in PhD studies: Koskinen Sanna, Kettunen Jari, Rapeli Pekka, Kjersti Troeland-Hanssen, Heidi Losoi. Head of the Masku neurological rehabilitation centre since 2011. Chair of the RIMS Special Interest Group in Psychology and Neuropsychology 2001-2010, as a co-chair 2010-2011. Member of the steering committee of the Finnish Neuropsychological Society 2006-2012. Member of the Neuropsychological work group in the Finnish Psychology Association 2005-2011. Member of the medical and neuropsychological steering groups of the Finnish National Insurance Institution’s VAKE -project (Project to develop rehabilitation for severely handicapped patients with MS, stroke and CP). Member of the Executive board of the Rehabilitation in Multiple Sclerosis (RIMS) 2011-2014 (secretary), 2014 – (SIG coordinator). Member of the Executive Board of the International MS and Cognition Society (IMSCogS). Member of the Advisory Board of the University of the Applied Sciences in Turku (Health Care and Social sciences) from 2015.

Jürg Kesselring
Department of Neurorehabilitation
Valens Clinic Rehabilitation Center
Valens, Switzerland

Jürg Kesselring is Head of Department of Neurology & Neurorehabilitation at the Rehabilitation Centre in Valens, Switzerland and Professor of Clinical Neurology and Neurorehabilitation, University of Bern, Lecturer in Clinical Neuroscience at the Center of Neuroscience, University and ETH Zürich, Chair of neurorehabilitation, San Raffaele University, Milano, Italy and at Danube university, Krems, Austria. He is a Member of the Assembly of the International Committee of the Red Cross, and former President of the Swiss Multiple Sclerosis Society and former Chairman of the International Medical and Scientific Board of Multiple Sclerosis International Federation (MSIF) and of the Research Committee on Demyelination of the World Federation of Neurology (WFN), Chairman of the WHO Working Group on Multiple Sclerosis (-2005), former President of the European Committee on Treatment and Research in Multiple Sclerosis (ECTRIMS). Author of 180 Original publications and Editor or Co-Author of 15 books, mainly related to Multiple Sclerosis, Neurorehabilitation, Magnetic Resonance Imaging.
Verena Kesselring is Senior Physician in Neurology at Kliniken Valens Rehabilitationcenter in Valens, Switzerland – since 1999 - and MD specialist in internal medicine, FA Psychosocial und Psychosomatic Medicine SAPPM. She works at Kantonsspital St. Gallen and Schaffhausen (internal medicine), Universityhospital Bern (neurology) and Munsingen und Zurich (psychiatry). Since 1999 senior physician in Neurorehabilitationcenter Valens, Psychosomatics Neurology. Member of the Swiss Working Committee for Psychosocial and Psychosomatic Medicine SAPPM; member of the FMH Internal Medicine and of the executive board “Verein Wohnen und Arbeiten mit Behinderung QWB St. Gallen”. Since 2000 she is lecturer at academy of Physiotherapy in Landquart. From 1995 to 2014 sh’s been lecturer at academy of Medical engineering in Buchs (NTB).

Dawn Langdon completed her training as a clinical psychologist at Oxford University and the Institute of Psychiatry, London. She worked as a clinical neuropsychologist at the National Hospital for Neurology and Neurosurgery, Queen Square, London for sixteen years, obtaining a PhD on reasoning in organic brain syndromes from the Institute of Neurology and registration as both a neuropsychologist and a health psychologist. She is now Professor of Neuropsychology and Director of Health and Medicine at Royal Holloway, University of London. She is neuropsychology lead on a number of multinational trials for the pharmaceutical industry. She has worked extensively on psychological aspects of MS, including measurement of cognition and its relation to pathology and other disease variables. She is also investigating how risks and benefits of MS medication are best communicated to patients. Another interest is how employment relates to cognition in MS. She has published over 60 peer-review articles and has an h-index of 30. She is a frequent contributor to international scientific meetings and committees and is a Trustee of the UK MS Trust, with whom she has authored the MS cognition website www.stayingsmart.org.uk. She is co-chair of Brief International Cognitive Assessment for MS initiative [www.BICAMS.net] and Secretary of the International MS Cognition Society [www.IMSCOGS.com]. She is Mental Health Work Package Lead on the NHS England Community Neurology Project and an author on the project’s recent commissioning guide [http://www.neural.org.uk/nhs-england-community-project-for-neurology].
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L1. From neurorehabilitation to neuroplasticity and viceversa

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Abstract not in hand at the time of printing.
Re-organisation of structures and functions in the brain are the basis of learning. Plastic changes occur in normal as well as in diseased brains and can be enhanced by task-specific therapeutic interventions (Neurorehabilitation). Due to the variety of symptoms and functional deficits Multiple Sclerosis (MS) can lead to a broad range of functional impairments and handicap. Even with newer immunomodulating therapies, the course remains progressive. The symptoms themselves, loss of independence and participation in social activities are responsible for the progressive decline of quality of life. The main objective of a comprehensive rehabilitation program is to ease the burden of disease by improving self performance and independence. Restoration of function is not the key effect of rehabilitation in MS. As rehabilitation measures have no direct influence on the ongoing disease process and progression of the disease, compensation of functional deficits, adaptation and reconditioning together with other nonspecific effects (management of specific symptoms and impairments, emotional coping, self estimation) is more important in the longterm. Several of the many symptoms of MS are amenable to drug therapies which have been proven in careful evidence-based analyses to be effective (e.g. fatigue, spasticity, bladder, bowel and sexual disturbances, pain, cognitive dysfunctions etc). Newer studies in MS patients show, that despite the ongoing progression of the disease process, rehabilitation is effective by improving personal activities and participation in social activities leading to better quality of life. After comprehensive inpatient rehabilitation, improvement lasts over the treatment period for several months. Quality of life is correlated more with disability and handicap rather than with functional deficits and progression of the disease.

References:
- Serafin Beer, Fary Khan, Jürg Kesselring Rehabilitation interventions in Multiple Sclerosis An overview. J Neurol 2012 DOI 10.1007/s00415-012-6577-4
- Kesselring J, Coenen M, Cieza A, Thompson A, Kostanjsek N, Stucki G Developing the ICF Core Sets for Multiple Sclerosis to specify functioning. Multiple Sclerosis 2008;14: 252-4
- Holper, Coenen M, Weise A, Stucki G, Cieza A, Kesselring J Characterizing functioning in MS using the ICF. J Neurol 2010; 257. 103 – 113
- Beer S, Manoglou D, Aschbacher B, Kool J Kesselring J Robot-assisted gait training in MS – a randomised controlled trial. Multiple Sclerosis 2008; 14:231 –236
Increasing pressure from health insurances and society and limited financial resources force caregivers to shorten therapies. Furthermore therapists are obliged to provide effective, economic and purposeful therapy. Appropriate assessments are therefore required to assess the health problems of pwMS and to establish an efficient treatment plan. Assessments either diagnose and specify the problem, or evaluate treatment-success and outcome, or give a prognosis of the course of the disease or health problem.

An assessment is appropriate if it is clinically relevant, fulfils psychometric properties, and is practicable. The ICF (International Classification of Functioning, Disability and Health) provides a unified and standard language and framework for the description of health. Its components of functioning and disability are described within the constructs of body functions/structures, activities and participation.

More than 70 assessments on all 3 ICF-levels are edited in a very valuable guidebook for the assessment of all neurological disorders: “Assessments in Rehabilitation, volume 1 Neurology”. The assessments considered most important for pwMS are presented in the lecture, such as the Expanded Disability Status Scale, Multiple Sclerosis Questionnaire for Physical Therapists, Berg Balance Scale and Clinical Test for Sensory Interaction in Balance. Psychometric properties of the tests, practical information and recommendations for the user will be discussed.
S2. Gait and Walking Assessments by MS

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Abstract not in hand at the time of printing.
The goal of neurological rehabilitation is to support pwMS returning to the highest possible level of functioning and independence, whilst improving the overall quality of life.

The role of the therapist is to restore function such as strength and range of motion and to enable activities such as walking and transfers from bed to wheelchair. Technical aids compensating lost function are used to alleviate daily life and to improve social participation. MS as a chronic and progressive disease requires individual solutions for both restoration and compensation. Therefore the therapist evaluates the appropriateness of technical aids at regular intervals.

It is a challenge for the therapist to select which technical aid will support the patient to perform better in daily activities. For pwMS it is sometimes difficult to accept technical aids as for them it requires acceptance of deteriorated function and progress of the disease. Therapists have to take patients’ expectations and fears into account and guide pwMS in their process of coping with the disability and discovering new possibilities that technical aids may give.

A variety of technical aids to support mobility and walking is presented and discussed in this lecture. Aspects of safety at home are addressed. Finally, devices to be used during therapy sessions are presented.
The presentation will focus on defining aims for upper and motor limb rehabilitation, and present an overview of evidence of rehabilitation strategies.

The ICF classification of functioning, with a core set of categories on different levels, can be used for defining the treatment aims in a joint discussion of the person with MS and the health care professional. Standard tests and patient reported questionnaires related to the treatment aims are applied at baseline to judge the severity of the dysfunction and the effects of treatments. For both upper and lower limb motor rehabilitation, a distinction will be made between capacity and performance.

An overview of the evidence related to upper limb rehabilitation will be provided based on the systematic review of Lamers et al. While there were many pilot studies being performed, large RCT targeting impaired upper limb function are few. Positively, a neural preservation after task-oriented training was shown. Strikingly, most studies were describing unilateral training methods while upper limb function often requires bimanual skills for successful execution.

Illustration of effective rehabilitation strategies for lower limb function and gait will be provided. Here, attention will be given to interventions at early disease stage, as well as the need for inclusion of behavioral change techniques if one aims to improve lifestyle physical activity. Finally, it will be discussed whether one should consider cognitive-motor interference to be assessed during walking, and perhaps even challenged during rehabilitation programs. Overall, there is increased evidence that physical training may also have beneficial effects on specific cognitive functions.

References:
Aquatic therapy is often recommended for patients with neuro-motor difficulties in addition to land treatment. There are some advantages, which rise from the hydrophysical properties, which you have to use in the therapy. Pool immersion has effects on cardio-vascular-, breath- and nervous- system. These effects increase the blood flow in the brain and appear to improve learning.

Buoyancy, hydrostatic pressure, viscosity, turbulences, waves and temperature support therapy especially for severely disabled people. Well-educated physio- and occupational therapists know how to use these forces in a treatment session. One of the most important advantages in comparison to treatment on dry land is the null risk of falls. Moreover, as movements in the water are slower, patients have more time to think about how to plan and adjust movements and reaction strategies. This is very helpful for patients with balance problems. Buoyancy helps to activate weak muscle groups in functional activities. Many patients are able to walk in chest deep water without help, so they can improve their postural control. For sedentary patients the immersion effect is comparable to a low level cardio-vascular training in terms of cardiac output. Therapy in a pool with temperature between 24 and 32°C positively influences the thermo-sensitivity. The optimal water temperature is not established for MS patients, as literature about the application of water therapy in MS is very scarce. The few papers available demonstrates that it improves balance and increases neuroprotection.
The subtle and often insidious changes in cognition, unspoken of for years and seen in all subgroups of Multiple Sclerosis (MS) irrespective of age or disease pattern, are finally being given the profile and importance their impact warrants. Cognitive impairments have been reported in 40% of population-based studies and >65% of clinically-based studies. They are not exclusively a late phenomenon in the disease course and can be identified in patients who are at the beginning of their disease, although they tend to progress in the long-term and are usually prominent in the progressive phases of the disease. The neuropsychological profile is characterized by defects of information processing speed, working memory, long-term, episodic visual-spatial and verbal memory, and aspects of executive functioning, whereas language and general intelligence are usually spared. Usually, information processing speed and episodic memory are more affected in the early stages of the disease, whereas progressive patients can exhibit more severe and widespread deficits involving a large variety of cognitive domains. Pediatric-onset MS subjects can also exhibit cognitive impairment in approximately 30% of the cases. The profile of cognitive impairments in the pediatric population largely overlaps that known in adults with MS, although language and intelligence quotient can be involved, particularly in those who are younger at the onset of the disease. Mood disorders are also frequent in MS patients and are associated with considerable morbidity and mortality. Major depression can affect up to 50% of patients over the course of their life with MS. Looking beyond the full syndrome of major depression, clusters of depressive symptoms are frequently found (sub-syndromal depression). The etiology of MS-related depression is multifactorial, including both psychological and biological factors. The importance of detecting and treating the depressed patient is underscored by the high suicide rate in MS. In a disease without cure, good management translates into good symptoms management. In the case of mood disorders, the benefits to patients’ quality of life are considerable and demand attention.
The pattern of cognitive difficulties in MS, with information processing speed and memory being the most prevalent and most severely affected domains, make detection problematic in casual conversation and even at routine consultation. Patient self-report of cognitive deficits is confounded by depression. Objective assessment on valid and reliable scales is therefore necessary. Several “gold standard” batteries are available, but they tend to be lengthy and require administration by a neuropsychologist. BICAMS [www.BICAMS.net] is a 15 minute cognitive tool that can be utilised in most MS clinics. There are 28 countries in the national validation pipeline (11 of these published or in press). In all countries which have compared BICAMS to the 90 minute MACFIMS battery, BICAMS has demonstrated equal sensitivity to cognitive impairment.

References:
Cognitive deficits are common symptoms in multiple sclerosis (MS), and evident even in the early phases of the disease. Cognitive functions most frequently affected are information processing, memory and learning, attention, and executive functions. Deficits may have a multidimensional impact on quality of life by weakening the ability to work, impairing social functioning, and increasing the strain of the caregiver. To date no effective pharmacological treatment for cognitive decline has been established. Neuropsychological rehabilitation aims at 1) reducing cognitive deficits; 2) reducing the harmful effects of cognitive impairments; and 3) supporting patients’ awareness and ability to take cognitive impairments into account in daily living. Neuropsychological rehabilitation has been found effective in patients with stroke and traumatic brain injury. The presentation discusses the evidence on neuropsychological rehabilitation in MS based on recent systematic literature reviews and suggests models for alleviating the effects of cognitive impairments in MS. The preliminary research evidence on the effects of neuropsychological rehabilitation in MS is positive: rehabilitation may have favorable effects on patient’s cognitive performance and coping with cognitive impairments which may be manifested also as improved functioning of neural network. In clinical practice, both diagnostics and treatment of cognitive impairments should be improved. Neuropsychological rehabilitation should be an important part of rehabilitation regimen in MS.
Often the OT has a role in the later stages of the MS, EDSS 5→6, where the patient may well be dealing with issues such as diminishing strength, losing independence in the activities of daily living (ADL) and Fatigue. The OT covers important, but perhaps less obvious issues of MS patients (life roles, relationships, etc.).

When the OT engages the person in the therapeutic process, she discovers who the person is, what his/her life roles and routine habits are and how the environment impacts on daily activities. In other words the OT builds an overall picture of the individual level of “occupational performance & daily demands”.

The Case report will demonstrate how intense OT can increase independence and improve the performance in some daily living activities, also through the use of simple devices and strategies.
In the Clinical Practice Guidelines of the Multiple Sclerosis (MS) Council, fatigue is defined as “a subjective lack of physical and/or mental energy that is perceived by the individual or caregiver to interfere with usual and desired activities”. Several prevalence surveys showed that fatigue is reported by 70% to 90% of the people with MS, and half of them consider this as their most disabling symptom (Weiland et al., 2015; Bergamaschir et al., 2007). Fatigue limits the ability to participate in everyday activities, the core business of occupational therapists, is a source of psychological distress and impairs quality of life, too (Kos et al., 2008).

Because this symptom is so common, but variable and inconsistent, even within individuals, measuring and managing fatigue is a critical and challenging task for health professionals providing care to people with MS. It requires a multidisciplinary rehabilitation for successful management (Asano et al., 2014). In addition to physical exercises (Bansi et al., 2013) and the use of drugs, fatigue management education based on a cognitive behavioural therapy approach is considered the most promising intervention to reduce its impact on occupational performance and quality of life (Craig et al., 2008; Mathiowetz et al., 2005). A patient education based on energy conservation strategies and focused on the occupational performance will be presented.
Bladder Dysfunction is common in MS, affecting 80% - 100% of patients during the course of the disease and has a severe effect on the patients’ quality of life. Bowel Dysfunction occurs with up to 40%.

Bladder Dysfunction Symptoms are urgency, frequency, incontinence, nocturia, hesitancy, postvoidal residue. Bowel Dysfunction Symptoms are constipation and faecal incontinence.

Both Bladder and Bowel Dysfunction have effect on fatigue, gait control, spasticity, pain, depression and sexual activity.

The therapeutic interventions are most effective with a multidisciplinary approach and should be offered by special educated health professionals. Patient education and simple and helpful interventions are to be individual and close monitored with the possibility that symptoms will recur or develop de novo.

Possible physiotherapeutic interventions are:
- Pacing of micturition and fluid intake
- Pelvic floor muscle training
- Relaxation and breathing techniques
- Mobility and manual dexterity training
- Biofeedback and or electrical stimulation
- Advice on absorbent incontinence pads and urinals
- Clean Intermittent Self Catheterisation (CISC)
- Trans Anal Irrigation

The symptoms of most patients with OAB (Over Active Bladder) can be managed conservatively. Medical management in the form of anticholinergic therapy is effective.

Intravesical administration of capsaicin or botulinumtoxin may be beneficial when first-line treatment is ineffective.

The overall goal is to maintain the patient’ dignity and self esteem and so optimise the quality of life.
Dysphagia is a frequent, though potentially overlooked symptom of patients with Multiple Sclerosis (MS). While it regularly affects patients with severe disability, it can also occur in an early stage of the disease, due the possibly widespread involvement of cerebral structures of the inflammation. Dysphagia in MS patients is very frequent, ranging about 30-40% overall. Further complications are the possibility of incidence of bolus, leading to acute blockage of airways (and severe vagal reaction), pneumonia due to aspiration, malnutrition and/or dehydration, drooling, pain, discomfort. Because of the high importance of food intake, not only in terms of nutrition, an individual assessment of dysphagia in suspected patients is mandatory. Despite of emerging reports in the last decade it is still supposed to be largely overlooked. Though it affects patients with a higher EDSS, about 15% of patients in an early stage seem to suffer from dysphagia. Detection can be performed by medical history/anamnesis and the rate of detection may be higher using clinical or even technical examination methods. In detected dysphagia in MS compensatory strategies were reported to be sufficient to resolve the dysphagia in >90%. Such additional strategies can include modification of food, swallowing techniques, action against hypersalivation.
Patients with Multiple Sclerosis can be impaired in their ability to communicate because of a speech disorder called dysarthria. Dysarthria starts after a normal speech development because of a neurological damage in the central or peripheral nervous-system (Nospes & Olthoff 2014). It results in a disability in the muscles using for speech production and in a reduced intelligibility, which is associated with less ability to take part in communication situations. Because of this, patients have a high risk to come in social isolation (American Speech-Language-Hearing Association (ASHA)).

Dysarthria in Multiple Sclerosis has a prevalence of 40-50% (Ziegler 1998). The most frequent forms in Multiple Sclerosis are Spasmodic Dysarthria and Ataxic Dysarthria (often mixed) (Henze et al. 2004).

For the diagnosis of Dysarthria it’s necessary to examine different speech-associated functions like respiration, phonation, articulation, resonance and prosody. Also, you have to examine the function of the relevant muscles of the tongue, the lips, the velum, the larynx and the face. There are standard assessments like the Frenchey Dysarthria Assessment (Enderby & Palmer 2008) or the Munich Intelligibility profile (Ziegler et al. 1993), but also self-constructed assessments of speech and language pathologists which examine the relevant functions and especially the intelligibility of spoken words, sentences and texts are often used.

To improve the patient’s intelligibility is the most important therapy-goal for patients with Dysarthria.

For German speaking patients there are only very few evidence based methods. Speech therapy in Dysarthria is often based on single case studies (Guidelines DGN 2012).

Speech and language pathologists usually first try to improve intelligibility by training the impaired functions and advising the patients how to change their mode of speaking in order to improve intelligibility. Also advising their relatives can be useful. Drugs and surgical methods can sometimes also be helpful: e.g. drugs that reduce saliva or a special prosthesis for the velum.

If in Multiple Sclerosis about 50% of spoken language is not intelligible, it should be useful to look for alternative means of communication (Henze 2004). This could be a special computer or for example simply an app on a tablet computer. It is important to work together with ergo-therapists and neuro-psychologists in order to find strategies suitable to the cognitive and motor level of the patient.

All in all the main goal is to make sure that people are able to communicate either verbal or with alternative means, because ability to communicate is the key to social participation.
The diagnosis of a neurological disease is always a heavy burden and emotional distress for persons affected and their relatives. There are different ways to cope with the impairment and the subsequent problems, disadvantageous ones and more favourable ones. The knowledge and training of coping strategies may sooth some of the difficulties persons with MS suffer from.

Depression, emotional lability and anxiety are common comorbidities in pwMS. It is important to pay attention to those problems and to check them with patients. Possible causes, symptoms and therapeutic options are explained.

The presentation brings into focus interactions between physical alterations and mental state on an organic as well as on a psychological basis. Certain physical and mental limitations caused by illness interfering especially with social life are highlighted, such as impaired cognitive ability and affective disorders. Emphasis is placed on favourable coping strategies illustrated with the help of some examples.
In addition to conventional clinical endpoints, patient-reported outcomes (PROMs) have gained importance in both clinical research and routine care. By providing information from a unique perspective, PROMs enable clinicians to obtain a better understanding of their patients and to inform clinical decision making. This is the case for multiple sclerosis (MS), which typically affects various functional domains and causes significant disability and impact on quality of life. PROMs are all-relevant endpoints for MS rehabilitation, as the ultimate goal of rehabilitation interventions is to improve MS symptoms, and to enhance patient functional independence and societal integration.

QOL measures are a type of PROM characterized by multidimensionality, as they address a minimum of three key dimensions: physical, psychological and social. Individualized QoL measures differ from traditional inventories in that QOL domains are not predetermined, but identified by the individual.

The use of QOL inventories in the MS field has improved over recent years: several MS-specific tools are now available, and individualized measures have been also applied in this population. Nonetheless, while the use of QOL measures in research is well established, many challenges lie ahead as their use is extended to routine MS care.

References:
11. Kuspinar A, Mayo NE. Do generic utility measures capture what is important to the quality of life of people with multiple sclerosis? Health Qual Life Outcomes 2013; 11:71
In 2001, the World Health Organisation (WHO) developed the International Classification of Functioning, Disability and Health (ICF) as an addition to the International Classification of Diseases (ICD). Whereas the ICD classifies diseases, the ICF classifies health and functioning. The ICF is based on a bio-psycho-social perspective. It provides a comprehensive universal framework for the description and assessment of health- and health-related domains of functioning and allows a shared terminology between health professionals. 1454 different categories are described: body functions, body structures, activities, participation and environmental factors.

To be useful, practical tools needed to be tailored (Üstün et al., 2004). To implement and facilitate the use of the ICF in clinical practice validated Core Sets for several diagnoses as well as contexts have been developed (Coenen et al., 2011). ICF Core Sets are fractions of the ICF relevant for a specific health condition or a specific context. These Core Sets include as few categories as possible for ease of use and as many as necessary to sufficiently cover the spectrum of functional limitations experienced by these groups of people. They serve as international standards for measuring and reporting.

The development of the ICF Core Sets for Multiple sclerosis (MS) has been a cooperative project between the Rehabilitation Centre Valens, the ICF Research Branch, the WHO, the Multiple Sclerosis International Federation (MSIF) and the International Society of Physical Medicine and Rehabilitation (ISPRM). The results of a systematic literature review, a qualitative focus group study, an expert survey and a multicentre cross-sectional empirical study provided the basis for a multistage consensus conference in Valens in 2008. 21 experts from different health professions from 16 countries established a Comprehensive and a Brief ICF Core Set for MS (Coenen et al., 2011). These preliminary Sets have been validated since in several studies by different professions (Berno et al., 2012) and the final versions have been published. These can be used for clinical decision making, choice of assessments, goal setting, documenting guidelines as well as for implementing a patient centred and evidence based rehabilitation.
Objectives
During recent years it has become clear that persons with multiple sclerosis (PwMS) benefit from physical exercise. The influences of exercising on immunological functions, fatigue and cardiorespiratory values are still controversially discussed. However since the last 15 years exercise therapy has become an important aspect of standardized rehabilitation in PwMS. Physical exercises performed within these programs are often practiced on bicycle ergometers, as progressive resistance training or combined exercise therapy.

Methods
This talk addresses the following issues:
(a) The role of exercise and sports therapy during multidisciplinary rehabilitation with PwMS;
(b) the importance of standardized endurance and resistance training during rehabilitation in PwMS;
(c) the identification of the main triggers to quantify exercise intensities during rehabilitation.

Results
Practical experiences of the Rehabilitation Center Valens concerning MS-specific endurance and progressive resistance training are presented. Case presentations (videos) highlight the area of sports therapy in clinical practice with MS patients.

Conclusion
Management of the main training procedures (quantification of exercise intensities) regarding an adequate exercise programme with PwMS during a rehabilitative stay.
Equestrian Rehabilitation (RE) represents a valid instrument of intervention abilitative and rehabilitative capable of offering various possibilities of application, both in the neuro-motor field and in the cognitive and relational field. It represents a complex therapeutic manner which needs the use of a horse, an adequate therapeutic setting (stables, work field), different instruments useful both for the harness of the horse (saddles, mouthpiece) and for the cleaning and care of the horses; it requires the collaboration of specialized staff, both from the medical and care viewpoint and from the sectorial and specific viewpoint for what regards to the horses. The develop of this rehabilitative method began in the 1960’ and fastly spreaded, and in 1974 gave birth to the International Society of Equestrian Rehabilitation, which in 1975 for the first time [and later every three years] promoted the International Therapeutic Riding Congress, which still nowadays represents a reference for experimentations, studies and researches in this field. Nowadays the RE is recognized as a rehabilitative method that lies on solid medical and scientific basis, and it is largely used all over the world. In Italy there are about 150 Centres of RE, but just a few are in hospital complex, and mainly associated to the National Italian Association of Equestrian Rehabilitation (A.N.I.R.E.) . It is hard to imagine how an animal could be an excellent “instrument” abilitative and rehabilitative and a peerless coworker. Yet it is now largely assessed the efficacy of the horse, gifted of muscular strength, confidential nature, armonious movements, slowness and speed, impetuosity and boldness, to provide useful stimulus to the postural reorganisation to the stimulation of balance, the muscular strengthen, the walk framework, the achievement of personal autonomy in daily activities for the people who entrust to its care. In 2001 the horse, in spite of prejudices and restraints as alternative therapy, succeeded in entering in the Clinical Rehabilitative Medical Records of the Physical and Rehabilitative Medicine of Don Carlo Gnocchi Foundation, meeting the assessment which composes this Medical Record, exactly as the other rehabilitative methods. So many individualized Rehabilitative Program for people affected by Multiple Sclerosis have been structured. The structuring of an effective Rehabilitative Program is characterized by the specific choice of the horse and its use in individual therapies, in doing the trick riding, in section, which is an essential prerequisite in order to achieve both the aim evidenced in the clinical evaluation and the mid-term and long-term goals. Results can be assessed through the Evaluation Scales commonly used in Rehabilitation, as the Functional Independence Measure (F.I.M.), that is extremely useful and easy to use monitor the Rehabilitative Program with the horse. The RE allows to acquire specific competences in the equestrian field, and to provide to patients new knowledge and experiences that turn into improvement of autonomy, as also detectable by caregivers (parents, relatives, educators, therapeutic allies). Such acquisitions, in fact, if exported out of the therapeutic setting, produce extremely positive consequence in the social field. Stimulating the reactions of balance on the horse, which reproduces human walk, allows to make a rehabilitative intervention in an already dynamic situation. The person will transfer and use these stimuli during walking: harness and take care of the horse in order to dress and take care of himself, ride the horse to ride a bike. The goals achieved strengthen the person’s self-esteem and the personal spirit of initiative, deeply modifying the attitude toward life, enabling new perspectives of independence and human relationship. The horse becomes a very important friend to take care of, for which overtaking social and architectural barriers. The relationship of affection that borns between the patient and his horse and, consequently, also with the therapeutic allies, produces new energies. Going to see one’s horse with a pack of carrots means having overtaken the discomfort of going to the supermarket with a wheelchair. The RE allows to reach functional and social outcomes and “riding” a new perspective of life.
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