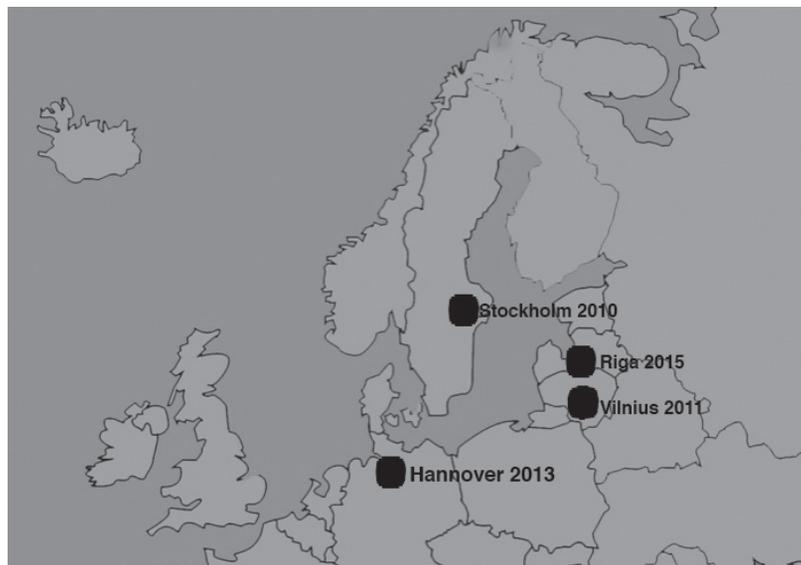


4th Baltic and North Sea Conference on Physical and Rehabilitation Medicine

Riga, Latvia
September 16–18, 2015



Baltic & North Sea Conferences on PRM

TABLE OF CONTENTS

Immunology and Rehabilitation	767
Communication in rehabilitation teams	767
Avoiding monoprofessional thinking in teamwork	767
Rehabilitation across borders – round table discussion	768
Communication and assistive devices	768
Acceptance & Commitment Therapy (ACT) as a first line intervention for lifestyle changes to treat and prevent chronic changes	768
Habilitation – transition from childhood to adulthood	769
Robotics and rehabilitation	770
Journal of Rehabilitation Medicine Symposium: Stroke rehabilitation	771
Qualitative research in rehabilitation medicine	771
Dysphagia management	773
Free oral presentations	774
Poster presentations	784
Author index	800

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The conference is organized by

Baltic and North Sea Forum on Physical & Rehabilitation Medi-
cine (BNF-PRM) in cooperation with Riga Stradins University,
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4TH BALTIC AND NORTH SEA CONFERENCE ON PHYSICAL AND REHABILITATION MEDICINE

IL = Invited lecture
 OP = Oral presentation free communication
 PP = Poster presentation

Wednesday 16 Sept: 11:30–12:30

Venue: Riga Stradiņš University, Dzirciema Street 16, Rīga

Board Meeting (on invitations only)

Wednesday 16 Sept: 13:00–15:30

BNC Opening Ceremony

Chairs: Prof Aivars Vētra (Latvia), Assoc Prof Anīta Vētra (Latvia), Prof Jan Ekholm (Sweden)

- Minister of Health, Rector of Riga Stradins University
- Historical lecture. The historical aspects of biomechanics in the Baltic States and Northern Europe; context of rehabilitation – Prof Jānis Vētra (Latvia)
- Olle Höök Lecture. System wide implementation of ICF in Rehabilitation: State of the art and recent scientific developments” – Prof Gerold Stucki (Switzerland)
- WHO perspectives on Rehabilitation and the role of ISPRM and BNF in North-East part of Europe – Prof Christoph Gutenbrunner (Germany)
- Greetings. ISPRM, ESPRM, UEMS-PRM, EARM and President of Latvian Medical Association
- Prize of European Academy

Wednesday 16 Sept: 15:30–16:00 – Coffee break

Wednesday 16 Sept: 16:00–17:30

Track 1, Part 1: Immunology and rehabilitation I (IL1–IL2)

Chairs: Prof Christoph Gutenbrunner (Germany), Assoc Prof Signe Tomsone (Latvia)

- IL1** Immunology and fibromyalgia, *Diana Kadetoff (MD, PhD) (Sweden)*
- IL2** Immunology and Post-polio, *Prof Kristian Borg (Sweden)*

Wednesday 16 Sept: 17:30–19:30

BNC Membership Assembly

Wednesday 16 Sept: 19:30–21:00

Welcome reception

Thursday 17 Sept: 9:00–10:30

Venue: Kīpsala International Exhibition Centre, 8 Kīpsalas Street, Rīga

Track 1, Part 2: Immunology and rehabilitation II (IL3–IL5)

Chairs: Prof Frans Nollet (Netherlands), Prof Kristian Borg (Sweden), Prof Kristina Schöldt Ekholm (Sweden)

- IL3** Immunology and rehabilitation; an overview, *Prof Christoph Gutenbrunner (Germany)*
- IL4** Postpolio immunology in relation to functioning, *Prof Frans Nollet (Netherlands)*
- IL5** Fibromyalgia and immunology in relation to depression, *Boya Nugraha, PhD (Germany)*

Thursday 17 Sept: 9:00–10:30

Conference workshop A: Communication in rehabilitation teams (IL6)

Chairs: Assoc Prof Marie-Louise Schult (Sweden), Assoc Prof Monika Löfgren (Sweden), Prof Mirjam Körner (Germany)

Thursday 17 Sept: 9:00–10:30

Conference workshop B: Avoiding monoprofessional thinking in teamwork (IL7)

Chairs: Assoc Prof Carl Molander (Sweden), Aelita Vagale, MS (Latvia), Prof Nijole Veckiene (Lithuania)

Thursday 17 Sept: 10:30–11:00 – Coffee break/Poster viewing

Thursday 17 Sept: 11:00–12:30

Symposium 1: Rehabilitation across borders – round table discussion (IL8–IL12)

Chairs: Prof Alvydas Juocevicius (Lithuania), Prof Galina Ivanova (Russia), Prof Christoph Gutenbrunner (Germany)

- IL8** Introduction to rehabilitation systems in Russia, *Prof Galina Ivanova (Russia)*
- IL9** Introduction to the Scandinavian perspective of Rehabilitation, *Prof Bengt Sjölund (Denmark)*
- IL10** Rehabilitation in Ukraine, *Prof Volodymyr Golik (Ukraine)*
- IL11** Rehabilitation system in Israel, *Iuly Treger, MD (Israel)*
- IL12** Rehabilitation in Latvia and Baltic Countries, *Prof Aivars Vētra (Latvia)*

Discussion

Thursday 17 Sept: 11:00–12:30

Special issue session 1: Communication and assistive devices (IL13-IL14, OP1–OP2)

Chairs: Inga-Lill Boman, OT, PhD (Sweden), Prof Kristian Borg (Sweden)

- IL13** Technical challenges in the field of communication, *Renzo Andrich (Italy)*
- OP1** The usability of a robot in brain injury rehabilitation, *Inga-Lill Boman, OT, PhD (Sweden)*
- OP2** First steps in designing an all-in-one device for persons with cognitive impairment, *Inga-Lill Boman, OT, PhD (Sweden)*
- IL14** Alternative/augmentative communication – key strategy for participation, *Andra Greitāne, MD (Latvia)*

Discussion

Thursday 17 Sept: 11:00–12:30

Conference workshop C: Acceptance and Commitment Therapy (ACT) as a first line intervention for lifestyle changes to treat and prevent chronic changes (IL15)

Chairs: Graciela Rovner, PT, PhD (Sweden), Prof Katharina Stibrant Sunnerhagen (Sweden)

Thursday 17 Sept: 12:30–14:00

Lunch/Poster viewing

Thursday 17 Sept: 14:00–15:30

Track 2, Part 1: Habilitation - transition from childhood to adulthood I (IL16–IL18)

Chairs: Assoc Prof Anita Vētra (Latvia), Prof Jan Ekholm (Sweden)

- IL16** Overview on transition, *Prof Anne Chamberlain (United Kingdom)*
- IL17** Recent scientific work on transition from childhood to adulthood, *Assoc Prof Marij Roebroek (Netherlands)*
- IL18** Adequate transition of health care from child to adult for patients with motor disability: environmental, medical and social challenges, *Prof Carole Vuillerot (France)*

Thursday 17 Sept: 15:30–16:00

Coffee break/Poster viewing

Thursday 17 Sept: 16:00–17:30

Track 2, Part 2: Habilitation - transition from childhood to adulthood I (IL19–IL21)

Chairs: Prof Anne Chamberlain (United Kingdom), Prof Jan Ekholm (Sweden)

- IL19** Transition from childhood to adulthood in idiopathic scoliosis patients, *Prof Stefano Negrini (Italy)*
- IL20** Transition in spina bifida and early onset spinal cord injury, *Prof Carlotte Kiekens (Belgium)*
- IL21** Experience of transition from childhood to adulthood in Latvia, *Inga Šķestere, Assoc Prof Anita Vētra, Dace Bērtule (Latvia)*

Thursday 17 Sept: 16:00–17:30

Symposium 2: Robotics and rehabilitation (IL22–IL24)

Chairs: Prof Katharina Stibrant Sunnerhagen (Sweden), Prof Rory O'Connor (United Kingdom)

- IL22** Development and testing of a home-based Computer Assisted Arm Rehabilitation (hCAAR) device for upper limb exercises in stroke patients, *Manoj Sivan, MD, PhD (United Kingdom) – The European Academy Prize Winner Lecture*
- IL23** The development and use of new technology in evidence-based practice after stroke, *Susanne Palmcrantz, PT, PhD (Sweden)*
- IL24** Technology enhanced upper limb rehabilitation, *Prof Rory O'Connor (United Kingdom)*

Thursday 17 Sept: 16:00–17:30

Conclusions and round table discussion of Workshops A “Communication in rehabilitation teams” and B on interprofessional thinking

Chairs: Assoc Prof Marie-Louise Schult (Sweden), Assoc Prof Monika Löfgren (Sweden), Prof Mirjam Körner (Germany), Assoc Prof Carl Molander (Sweden), Aelita Vagale (Latvia), Prof Nijole Veckiene (Lithuania)

Thursday 17 Sept: 19:30

The BNC International Conference Dinner

Friday 18 Sept: 9:00–10:30

Venue: Kīpsala International Exhibition Centre, 8 Kīpsalas Street, Rīga

Symposium 3, The Journal of Rehabilitation Medicine Symposium: Stroke rehabilitation (IL25–IL27)

Chairs: Prof Katharina Stibrant Sunnerhagen (Sweden), Prof Bengt Sjölund (Sweden)

- IL25** Content of rehabilitation in stroke units, *Prof Helen Rogers (United Kingdom)*
- IL26** Development of European evidence-based Recommendations for evaluation of the upper limb in neurorehabilitation, *Margit Alt Murphy, PhD (Sweden)*
- IL27** Early supported discharge after stroke, *Prof Mauro Zampolini (Italy)*

Friday 18 Sept: 9:00–10:40

Free oral communications I (OP3–OP12)

Chairs: Prof Thorsten Meyer (Germany), Assoc Prof Daina Šmite

- OP3** What makes up a successful rehabilitation institution? Results from the Meer-project, *Thorsten Meyer*
- OP4** Team coaching of interprofessional rehabilitation teams, *Mirjam Körner*
- OP5** Challenges of interdisciplinary team in medical rehabilitation: role of social work, *Ausra Budejiene*
- OP6** Rehabilitation planning using ICF criteria, *Andra Greitane*
- OP7** Psychometric properties of the functioning scales for the Latvian Clinical Personality Test (LCPT), *Jelena Kolesņikova*
- OP8** Characteristics of patients at first visit to a polio clinic in Sweden, *Katarina Skough Vreede*
- OP9** Multiple IVIG treatments in post-polio – Self selection of positive responders? *Gunilla Östlund*
- OP10** IVIG in patients with post-polio - responder group characteristics, *Gunilla Östlund*
- OP11** Growing up ready. Give me wings that will carry me. How to prepare for an adult life with a rare diagnosis - *Marie Hoff*
- OP12** Wearable head and back posture feedback system for children with cerebral palsy, *Atis Hermanis*

Friday 18 Sept: 9:00–10:30

Symposium 4: Qualitative research in rehabilitation medicine (IL28–IL31)

Chairs: Assoc Prof Monika Löfgren (Sweden), Prof Kristina Schüldt Ekholm (Sweden)

- IL28** Learning from the patients' perspective in development towards a patient centered rehabilitation. Introduction to qualitative research in rehabilitation, *Assoc Prof Monika Löfgren (Sweden)*
- IL29** Qualitative research : Children's perspectives, Cerebral Palsy, *Dawn M Pickering (United Kingdom)*
- IL30** Participation of people with acquired brain injury: Insiders perspective, *Karen Schipper, PhD (Netherlands)*
- IL31** "Cultural activities on the recipes" for people with long-term pain, *Assoc Prof em Georg Drakos (Sweden)*

Interactive discussion

Friday 18 Sept: 9:00–10:40

Free oral communications 2 (OP13–OP22)

Chairs: Prof Kristian Borg (Sweden), Boja Nugraha, PhD (Germany)

- OP13** Can we predict the risk of falls in amputees? *João Páscoa Pinheiro*
- OP14** Rehabilitation medicine and endocrine disease: therapeutic exercise ameliorates Type2 Diabetes by improving immune response, *João Páscoa Pinheiro*
- OP15** Knee joint contact force in subjects with knee osteoarthritis – an investigation of the influence of knee orthosis, *Mohammad Taghi Karimi*
- OP16** Assessment of low level laser therapy irradiation parameters on injured skeletal rat muscle treatment, *João Páscoa Pinheiro*
- OP17** Efficiency of physiotherapy using gait trainer - evaluation five month after rehabilitation, *Raimundas Venskaitis*
- OP18** Is pain acceptance a good indicator for differential response to various rehabilitation packages? *Graciela Rovner*
- OP19** Efficacy of tramadol/paracetamol 75mg/650mg/day and ibuprofenum 1200mg/day in reduction of pain and disability in patients with chronic low back pain: results of a 3-week, multicenter, randomized, double-blind study, *Vladimir Knež*
- OP20** Management of the process in children with idiopathic scoliosis of grade II degree, *Manana Rukhadze*
- OP21** The effect of 2nd degree adolescent idiopathic scoliosis on the static postural stability in the frontal and sagittal plane, *Katarzyna Zaborowska-Sapeta*
- OP22** Perinatal brachial plexus injury and prognostic factors, *Joana Costa*

Friday 18 Sept: 10:30–11:00

Coffee break/Poster viewing

Friday 18 Sept: 11:00–12:30

Track 2, Part 3: Habilitation - transition from childhood to adulthood III. Special Issue lectures on orthopaedics and vocational rehabilitation (IL32–IL34)

Chairs: Prof Matthias Bethge (Germany), Prof Aleksandras Krisciunas (Lithuania)

- IL32** Improving young persons' engagement in the transition process and in their overall healthcare, *Assoc Prof Rory O'Connor (United Kingdom)*
- IL33** Orthopedic rehabilitation of adults patients with cerebral palsy, *Iuly Treger, MD (Israel)*
- IL34** Use of administrative data to evaluate the benefit of return-to-work programs, *Prof Matthias Bethge (Germany)*

Friday 18 Sept: 11:00–12:30

Special issue session 2: Dysphagia management (IL35–IL36)

Chairs: Prof Christoph Gutenbrunner (Germany), Olga Kamaeva, MD (Russia)

- IL35** Teamwork – routine or challenge in rehabilitation of speech and swallowing disorders, *Anne Uriko and the team from the Centre of Speech and Swallowing Disorders (Estonia)*
- IL36** Dysphagia management - experience in Russia, *Olga Kamaeva, MD (Russia)*

Friday 18 Sept: 11:00–12:30

Free oral communications 3 (OP23–OP29)

Chairs: Prof Anne Chamberlain (United Kingdom), Prof Ireneusz Kowalski (Poland)

- OP23** What do young adults with neurological conditions moving into adulthood want from Leeds community neurological rehabilitation service? Are we meeting their needs, *Amy McCulloch*
- OP24** Sunnaas International Network (SIN) Stroke Study, disability after stroke in patients admitted to specialized rehabilitation in nine institutions/seven countries – an explorative study, *Birgitta Langhammer*
- OP25** Normality as cultural challenge in brain injury rehabilitation, *Grace Inga Romslund*
- OP26** Home rehabilitation after severe ischemic stroke. A case study of individual physiotherapeutic input, *Yury Zhidchenko*
- OP27** Biopsychosocial factors predicted the functioning in daily life, social activities and occupations among person with SCI, *Aušra Adomavičienė*

OP28 Body weight supported treadmill training versus traditional training in patients dependent on walking assistance after stroke: a randomized controlled trial, *Ellen Høyer*

OP29 Prevention of adolescent idiopathic scoliosis: dream or reality? *Prof Dudin MG, Prof Pinchuk DJ (Russia)*

Friday 18 Sept: 12:30–14:00

BNC Closing Ceremony

Chairs: Prof Aivars Vētra (Latvia), Prof Kristian Borg (Sweden), Prof Henk Stam (Netherlands)

Presentation of poster prize winner, *Prof Aivars Vētra (Latvia)*

Concluding remarks on the scientific outcomes of the conference, *Prof Kristian Borg (Sweden) and Prof Henk Stam (Netherlands)*

Presentation of the next conference

Post-conference workshop

OP30 Evidence-based physical and rehabilitation medicine: conservative approach to adolescents with idiopathic scoliosis

20–30 persons (registration for the workshop)

Chair: Prof Stefano Negrini (Italy)

Post-conference workshop

Round table discussion on organization and costs of rehabilitation services in Israel

Chair: Iuly Treger, MD, PhD (Israel)

Satellite-conference workshop

WHO GATE program to global proposals in the assistive technology areas we could schedule

Chair: Renzo Andrich (Italy)

Pre-conference workshop

Ultrasound diagnostics of musculoskeletal system in case of anatomical pathology

Pre-conference workshop

On CAD/CAM process based 3D scanning in orthosis production

LIST OF POSTERS

A. IMMUNOLOGY AND POST-POLIO REHABILITATION (PP1–PP2)

- PP1** No elevated levels of immune complexes in serum of postpolio patients, *Eva Melin*
- PP2** A long-time follow-up in prior polio patients - What happened in 17 years? *Katarina Skough Vreede*

B. HABILITATION OF CHILDREN (PP3–PP8)

- PP3** Psychomotor development during the first three years of life in perinatal HIV-infected children living in a long-term social care institution, *Lolita Cibule*
- PP4** Accessibility and requirements for assistive devices in children with spina bifida in Latvia, *Jelena Stunžāne*
- PP5** Rehabilitation of children with hypertension: cardiovascular risk assessment, *Karpuk Natalya*
- PP6** Pediatric stroke and post-surgery rehabilitation in Prune Belly Syndrome – a rare case report, *Joana Costa*
- PP7** Blount disease and rehabilitation, *Anna Binkiewicz-Glinska*
- PP8** Neuro-orthopaedic pneumo-suit therapy in children with cerebral palsy: influence on gait and muscle tone, *Helena Gapeyeva*

C. STROKE, BRAIN INJURY, AND SPINAL CORD INJURY REHABILITATION (PP9–PP18)

- PP9** C3-C4 Spinal cord incomplete injury: acute rehabilitation for better functional outcome, *Anna Trusina*
- PP10** Stroke patient's functional independence impact on them and their relatives psychoemotional condition, *Viktorija Dirgėlaitė*
- PP11** The importance of being aware of differences when comparing results of stroke rehabilitation in different countries, *Guna Berzina*
- PP12** Management of neurological complications after weight loss surgery, *Aet Lukmann*
- PP13** Risk of fall assessment of stroke patients in Riga East Clinical University Hospital 'Gaižezers', *Ulla Bambīte*
- PP14** Sports influence on the quality of life for persons with spinal cord injury, *Evita Kiukucane*
- PP15** Results of combined electrostimulation and mechanotherapy in post-stroke rehabilitation, *Baklushina Ekaterina*
- PP16** Enhancement of information support for stroke patients during the rehabilitation process, *Baklushina Elena*
- PP17** Music therapy for stroke patients to reduce movement disorders: a systematic review with meta-analysis of randomized controlled trials, *Jana Duhovska*

- PP18** Functional state of the cranio-mandibular system in patients with disorders of cerebral circulation, *Oleg Duniyakov*

D. LOCOMOTOR SYSTEM REHABILITATION AND PAIN (PP19–PP35)

- PP19** Healthcare professional perspectives on multimodal pain rehabilitation in primary care: a qualitative study, *Britt-Marie Stålnacke*
- PP20** Fatigue and chronic low back pain – are they related? *João Páscoa Pinheiro*
- PP21** Active pedal exerciser for leg rehabilitation, *João Páscoa Pinheiro*
- PP22** Botulinum toxin: a new approach to refractory complex regional pain syndrome (CRPS) type I – a case report, *Pedro Aroso*
- PP23** Simultaneous bilateral epiphyseal fracture of proximal tibia, *Joana Costa*
- PP24** Direct electrical stimulation of the injured ulnar nerve via acupuncture needles combined with rehabilitation may accelerate nerve regeneration and functional recovery – A case report, *Tang You-Jen*
- PP25** Institutionalized elderly rehabilitation – effects on physical fitness and quality of life, *Eugénia Mendes*
- PP26** Experience of a mobilization and active exercise program on the range of motion of bedridden patients with disuse syndrome, *Eugénia Mendes*
- PP27** Institutionalized elderly rehabilitation – improving balance ability with a platform technology, *Eugénia Mendes*
- PP28** Implementing a proprioceptive exercise program in elderly, *André Novo*
- PP29** Elderly with femoral neck fracture: analysis of falls and functional changes, *André Novo*
- PP30** Clinical applications of visually-plastic art, music, dance-movement and drama therapy in physical rehabilitation, *Indra Majore-Dūšele*
- PP31** Assessment, monitoring and evaluation: an overview of tools utilized by visually-plastic art, music, dance-movement and drama therapists of Latvia, *Jana Duhovska*
- PP32** Music therapy in healthcare across Europe: a comparative study, *Jana Duhovska*
- PP33** Rehabilitation of patients with arthroscopically type II SLAC lesion arthroplasty, *Antonio Araujo*
- PP34** Experience of collaboration between non-governmental organizations of Sweden and Latvia: feedback from users of assistive devices, *Ieva Jekabsone*
- PP35** The effectiveness of physiotherapy on pelvic floor dysfunction, *Lina Būtėnaitė*

E. CARDIOVASCULAR AND PULMONARY REHABILITATION (PP36–PP42)

- PP36** Effectiveness of different physiotherapy methods for patients with increased cardiometabolic risk, *Ieva Slivovskaja*
- PP37** Pulmonary Rehabilitation in COPD exacerbation: is upper limbs exercise training safe and effective? *Eugénia Mendes*
- PP38** Intervention in cardiac rehabilitation: is exercise training effective in decompensated heart failure patients? *André Novo*
- PP39** Functional training – effects on blood parameters in hemodialyzed patients, *André Novo*
- PP40** Early mobilization and exercise in elderly patients after coronary artery bypass grafting, *André Novo*
- PP41** Multidisciplinary approach to rehabilitation of cardiac patients, *Karpuk Natalya*
- PP42** Vascular perfusion, body composition and muscle strength in chronic kidney disease patients on regular hemodialysis program, *André Novo*

F. REHABILITATION AND NUTRITION (PP43–PP44)

- PP43** Life quality changes of seniors after dental prosthetics, *Ilze Vāciete*
- PP44** Dysphagia as initial complaint of Diffuse Idiopathic Skeletal Hyperostosis (DISH) – a case study, *Pedro Aroso*

G. Psychiatry and functioning (PP45–PP49)

- PP45** Relationship between depressive symptoms and functioning in a Latvian community sample, *Austra Ošleja*
- PP46** Relationship between psychotic symptoms and some aspects of functioning, *Anete Hofmane*
- PP47** Relationship between anxiety and some aspects of functioning in a Latvian community sample, *Zane Ozoliņa*
- PP48** Relationship between the substance use related disorders scale and aspects of functioning, *Kaiva Pēča*
- PP49** Relationship between functioning and mental disorders in a sample of rehabilitation patients, *Aija Jurjāne*

INVITED LECTURES

**TRACK 1, PART 1:
IMMUNOLOGY AND REHABILITATION I**

IL1

IMMUNOLOGY AND FIBROMYALGIA***Diana Kadetoff, MD, PhD****Osher Center For Integrative Medicine, Department of Clinical Neuroscience, Stockholm Brain Institute, Karolinska Institutet, Stockholm, Sweden*

IL2

IMMUNOLOGY AND POST-POLIO***Kristian Borg, MD, PhD****Division of Rehabilitation Medicine, Department of Clinical Sciences, Karolinska Institutet, Danderyd University Hospital, Stockholm, Sweden*

Patients with post-polio syndrome (PPS) have an inflammatory process in both cerebrospinal fluid and peripheral blood. The existence of an inflammation has further been supported by findings of a proteomic study with alterations of three proteins, all involved in neuroinflammation and apoptosis. Unfortunately, the inflammatory parameters have not correlated to symptoms or to the course of PPS. The cause of the inflammatory process is unclear and it has been speculated that there might be an autoimmune background for PPS. This was, however, contradicted by results from a recent study. Immune-modulating therapy with intravenous immunoglobulin (IvIg) decrease the inflammation and gives a clinical effect on muscle power, increased activity, quality of life especially for vitality and pain with a duration of approximately one year. So far no biomarker correlating to a positive outcome of the IvIg treatment has been reported and the clinical experience is that there are responders with a good effect of the treatment but also non-responders. Thus, it is of importance to characterize responders and non-responders in order to be able to give the treatment to patients who will benefit from it. Recently an up-regulation of prostaglandin enzymes, mPGES and cPGES as well as Cox 1 and Cox 2, was reported in blood vessels in muscle and one may speculate that this may be the background for "post-polio pain" and may be the target for IvIg. This finding opens new possibilities for treatment of PPS and of post-polio pain.

**TRACK 1, PART 2:
IMMUNOLOGY AND REHABILITATION II**

IL3

IMMUNOLOGY AND REHABILITATION; AN OVERVIEW***Christoph Gutenbrunner, MD, PhD****Department of Rehabilitation Medicine, Hannover Medical School, Hannover, Germany*

IL4

POSTPOLIO IMMUNOLOGY IN RELATION TO FUNCTIONING***Frans Nollet, MD, PhD****Department of Rehabilitation, Academic Medical Centre, University of Amsterdam, Amsterdam, The Netherlands*

IL5

FIBROMYALGIA AND IMMUNOLOGY IN RELATION TO DEPRESSION***Boya Nugraha, PhD****Rehabilitation Medicine, Hannover Medical School, Hannover, Germany***CONFERENCE WORKSHOP A**

IL6

COMMUNICATION IN REHABILITATION TEAMS***Mirjam Körner, Diplom-Psychologin, Diplom-Betriebswirtin (BA)¹, Marie-Louise Schult, OT, PhD²,
Monika Löfgren, RPT, PhD²****¹Albert-Ludwigs-Universität Freiburg, Medizinische Fakultät, Bereich Medizinische Psychologie und Medizinische Soziologie, Freiburg, Germany, ²Karolinska Institutet, Department of Clinical Sciences Danderyd University Hospital, Stockholm, Sweden*

Inter-professional teams ensure that health care professions could complete a complex care task that they could not achieve so effectively on their own. An open and equal communication is important to their ability to deliver effective care. Communication within inter-professional teams occurs in a variety of verbal and non-verbal forms. If the team includes the patient as an equal member of the team, communication is vital for success, for example like in the concept "patient centred care". In order to improve communication in rehabilitation teams, it is important to identify facilitators and barriers. Different tools and interventions can be used to improve communication. The groups will discuss these different aspects of communication and also how to include the patient as a part of the inter-professional team.

CONFERENCE WORKSHOP B

IL7

AVOIDING MONOPROFESSIONAL THINKING IN TEAMWORK***Nijole Veckiene, Prof, Carl Molander, MD, PhD²****¹Department of Social Work, Faculty of Social Science, Vytautas Magnus University Jonavos, Kaunas, Lithuania, ²Karolinska Institutet, Stockholm, Sweden*

One of the prerequisites for successful teamwork is effective use of the different professional skills available among the team professionals. This workshop will identify obstacles and facilitators for changing nonprofessional thinking into teamwork thinking, necessary to take advantage of these skills. We will discuss the relative importance of different contributions based on available evidence and experiences from the participating clinics: psychological, social, cultural, educational, professional, organizational, and legislative, and how they may be interrelated. Next, we will use this information and available evidence to discuss possible strategies for how monoprofessional thinking may be avoided. The aim of this workshop is to provide the participants with ideas that could be used to improve teamwork thinking in their home clinics.

**SYMPOSIUM 1:
REHABILITATION ACROSS BORDERS –
ROUND TABLE DISCUSSION**

IL8

**INTRODUCTION TO REHABILITATION
SYSTEMS IN RUSSIA**

Galnia Ivanova, MD, PhD

Department of Medical and Social Rehabilitation of Stroke, Moscow, Russia

IL9

**INTRODUCTION TO THE SCANDINAVIAN
PERSPECTIVE IN REHABILITATION**

Bengt Sjölund, MD, PhD

Research Initiative in Rehabilitation, University of Southern Denmark, Odense, Denmark

IL10

REHABILITATION IN UKRAINE

Volodymyr Golik, MD, PhD

Ukraine

IL11

THE REHABILITATION SYSTEM IN ISRAEL

Iuly Treger, MD, PhD, MHA¹, Lena Lutsky, MD, MHA²

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Health care in Israel is universal and participation in a medical insurance plan is compulsory. In 1995, the National Health Insurance Law came into effect, which made membership in one of the four existing Health Maintenance Organizations compulsory for all Israeli citizens. The law determined a uniform benefits package for all citizens – a list of medical services and treatments which each of the Health Maintenance Organizations is required to fund for its members. A primary medical rehabilitation after severe injuries and diseases is included into the health package till the time limit of 3 months after the injury and is covered by the National Insurance. Health Fund is in charge of both inpatient and outpatient rehabilitation program according to the needs of the patient. Most of outpatient rehabilitation needs are managed by Health Fund as a direct provider of services list. A secondary rehabilitation of chronic patients and long-term supportive rehab are not in the list of obligatory services and are not covered by National Insurance. In Israel, there are approximately 15 beds of intensive primary hospital rehabilitation per 100,000 populations. Those institutions provide minimum 3 hours of intensive rehabilitation care per day. Additionally, there are general or geriatric rehabilitation centers and departments, providing non-specific rehabilitation treatment – 15–20 beds for 100,000 populations. There are one multi-profile specialized rehabilitation center out of general hospital in Israel, one center inside the hospital, one center of children rehabilitation and 10 rehab units in general medical centers. There are specialized children departments, department of geriatric, respiratory rehabilitation in the relevant medical wards. There is a strong trend towards ambulatory and community-based rehabilitation in Israel and all types of outpatient rehab (Home Rehab, Day Center) are developing rapidly in regional departments of all Health Funds. This tendency is especially impressive at the periphery of the country, where an amount of inpatient professional rehabilitation facilities is relatively low.

IL12

**REHABILITATION IN LATVIA AND BALTIC
COUNTRIES**

Aivars Vetra, MD, PhD

Rīga Stradiņš University, Latvia

**SPECIAL ISSUE SESSION 1:
COMMUNICATION AND ASSISTIVE DEVICES**

IL13

**TECHNICAL CHALLENGES IN THE FIELD OF
COMMUNICATION**

Renzo Andrich, ing.

Milano, Italy

IL14

**ALTERNATIVE/AUGMENTATIVE
COMMUNICATION – KEY STRATEGY FOR
PARTICIPATION**

Andra Greitāne, MD

Rehabilitation center “Mes esam līdzas”, Latvia

The presentation will include information about the background of alternative/augmentative communication (AAC) and why it is important. As well as the evidence of need for AAC, i.e. how many people benefit from it. The types of AAC services will be highlighted. Assessment for AAC which requires consideration of a broad range of factors including an individual's abilities (physical, sensory and cognitive); communication potential and requirements; environmental constraints; needs of the individual and their family and resourcing will be described. The role of evidence based assessment of communication will be shown using as an example “Communication function classification system”^{*} and its validation in Latvia. Components required for AAC service provision - funding, training, positioning and mounting, maintenance, repair, support, research and development, information, advice and education will be explained. The following outcomes of AAC will be identified: 1) improved quality of communication, 2) improved effectiveness of communication, 3) reduced challenging behaviour, 4) increased assertiveness, 5) increased educational opportunities, 6) increased social opportunities, 7) improved quality of life and independence. A case study of a child with Cerebral palsy and communication disorders will be presented.

References: Hidecker, M.J.C. et al Developing and validating the Communication Function Classification System (CFC) for individuals with cerebral palsy, Developmental Medicine and Child Neurology. 53(8), 704–710. doi: 10.1111/j.1469-8749.2011.03996.x, PMC3130799.

CONFERENCE WORKSHOP C

IL15

**ACCEPTANCE AND COMMITMENT THERAPY
(ACT) AS A FIRST LINE INTERVENTION
FOR LIFESTYLE CHANGES TO TREAT AND
PREVENT CHRONIC CHANGES**

Graciela Rovner, RPT, PhD

Division of Rehabilitation Medicine, Dept of Clinical Sciences, Karolinska Institutet, Danderyd University Hospital, Stockholm, Sweden

**TRACK 2, PART 1:
HABILITATION – TRANSITION FROM
CHILDHOOD TO ADULTHOOD**

IL16

OVERVIEW ON TRANSITION

Anne Chamberlain, MD, PhD*Academic Department of Rehabilitation Medicine, University of Leeds, UK*

IL17

RECENT SCIENTIFIC WORK ON TRANSITION FROM CHILDHOOD TO ADULTHOOD

Marij Roebroek, MD, PhD*Department of Rehabilitation Medicine, Erasmus MC, University Medical Centre, Rotterdam, The Netherlands*

IL18

ADEQUATE TRANSITION OF HEALTH CARE FROM CHILD TO ADULT FOR PATIENTS WITH MOTOR DISABILITY: ENVIRONMENTAL, MEDICAL AND SOCIAL CHALLENGES

Carole Vuillerot, MD, PhD¹, Vincent Gautheron, MD, PhD², Capucine de Lattre, MD², Vincent Tiffreau, MD, PhD³, Alain Yelnik, MD, PhD⁴*¹Hospices Civils de Lyon, Bron, ²University Hospital of St-Etienne, St Etienne, ³University Hospital of Lille, Lille, ⁴University Hospital Fernand Widal, Paris, France*

Introduction: Aging is a part of life that is inevitable for all of young patients with a motor disability. The time comes to leave pediatric teams for the adult's world, and it does not get without some fears and brakes from both sides. This stage requires anticipation and preparation. It must be started by child-centered health care sector in close relation with the adult medical team. The young (and his/her family) remains central to the process which will take some years: that's what we call the transition period. *Purpose:* A group from the SOFMER (French society for Physical and Rehabilitation medicine) proposed a set of recommendations for good practices for the transition of health care from child to adult for patients with motor disability. Many domains were relevant: medical care but even training, independent living, education, employment and social/community life. *Methods:* A 3-step study was performed including *i*) a review of the existing literature, *ii*) a public conference to include the professional participants remarks and comments following the literature review, *iii*) an approach by a committee to review and validate the proposed recommendations. *Results:* The first step took place from February to October 2010. The recommendations, which emerged from this review and analysis, were discussed at the Marseille public conference on October 13th 2010 and further enhanced by the professional attendees' practices and experiences. A multidisciplinary group reviewed these recommendations before a final submission to HAS (French High Health Authority) labelling. *Conclusions:* Two major periods were identified: the transition period and the transfer period. Some specific recommendations were developed according to epidemiology of motor disabilities, medical and administrative criteria, legal issues, emotional and psychological factors.

**TRACK 2, PART 2:
HABILITATION – TRANSITION FROM
CHILDHOOD TO ADULTHOOD**

IL19

TRANSITION FROM CHILDHOOD TO ADULTHOOD IN IDIOPATHIC SCOLIOSIS PATIENTS

Stefano Negrini, MD*University of Brescia - IRCCS Don Gnocchi, Milan-Brescia, Italy*

In the past, idiopathic scoliosis (IS) was believed to be a problem of adolescence only, that did not evolve in adulthood. Today we know that this is not true, and that IS can evolve throughout the entire life. Consequently, the approach has changed and IS has become a chronic condition that can cause back pain and progressive deformity in adulthood. According to this new knowledge, the transition from adolescence to adulthood, that in the past was thought only as the moment of the end of treatment, has become the mandatory moment for an educational approach to give the patient all the information needed to face adult life reducing the burden of deformity. First step is to identify the risks for health of the patient, living a whole life with the specific deformity. As for any other risk factor in any health condition, IS follows a curve in which until a certain threshold the risk is negligible, then it increases rapidly to another level where its presence almost certainly will create problems. These two thresholds have been identified in the literature with Cobb degrees, where below 30° the risks of problems in adulthood (back pain and progression) are almost negligible, while above 45–50° (surgical threshold) there are always problems. These Cobb degrees thresholds change with the presence of other co-factors, like lumbar take-off, sagittal plane configuration (according to SRS-Schwab classification), etc. After defining risks, at transition to adulthood, patients are advised to have regular follow-up: between 15° and 30°, every 5 years; between 30° and 45°, every 2 to 4 years; above 45° and rejecting surgery, every year. It is important to provide all information to patients regarding adult life with IS. In particular about everyday life (work, sport activities, hobbies), specific life situations (pregnancy, menopause, ageing), possible treatments (exercises, braces, supports, surgery), how to face back pain and possible deformity progression, what to do and what to avoid. All these topics will be explained in the presentation.

IL20

TRANSITION IN SPINA BIFIDA AND EARLY ONSET SPINAL CORD INJURY

Charlotte Kiekens, MD¹, Myleen Christiaens, Bc², Katrien Jansen, MD, PhD¹*¹University Hospitals Leuven, Pellenberg, ²University Hospitals Leuven, Leuven, Belgium*

With increasing quality of treatment and care for children with spina bifida (SB) and early onset spinal cord injury (SCI) the vast majority of them nowadays live into adulthood, at least in Western countries. During adolescence some impairments may worsen either due to medical reasons or because of behavioural problems, such as not catheterising as often as necessary or refusing to wear braces. Also limitations in activities and participation restrictions may increase. Therefore specific measures facilitating and guiding transition are crucial. Transition from the pediatric to the adult setting should not be a single event but requires a gradual process taking place before (from age 12 to 14 on), during and after the transfer. Pediatric and adult care differ in culture as well as in style. Whereas pediatric oriented settings are often perceived as 'overprotecting', adult teams in contrast may seem 'cold and distant'. It still occurs that

SB or SCI patients aged over 18 either continue to be taken care of by pediatric teams, or are simply abandoned by regular coordinated health care. Patients with spina bifida, especially in case of meningocele, are confronted with multisystem conditions. Significant changes in most systems may occur when growing adult: metabolic, urological, neurological, orthopaedic, gastrointestinal, sexual, cognitive, behavioral and psychological. Growing adult means acquiring independence and feeling comfortable with making one's own decisions. Participation issues concerning relationships, education, housing, employment, leisure and sports activities, mobility and self-advocacy must be dealt with. Adolescents with SB or SCI should learn how to make appointments and to be the primary communicator. Patient organisations for the adolescents as well as the parents may be very helpful in this important phase. In this lecture the Model of Transition at UZ Leuven will be presented. An overview of how to deal with the most important topics concerning medical as well as activity and participation issues occurring in adolescence of patients with SB and early onset SCI will be given. *Reference:* Le JT, Mukherjee S. Transition to Adult Care for Patients with Spina Bifida. *Phys Med Rehabil Clin N Am* 2015;26:29–38.

IL21

EXPERIENCE OF TRANSITION FROM CHILDHOOD TO ADULTHOOD IN LATVIA

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SYMPOSIUM 2:

ROBOTICS AND REHABILITATION

IL22

DEVELOPMENT AND TESTING OF A HOME-BASED COMPUTER-ASSISTED ARM REHABILITATION (HCAAR) DEVICE FOR UPPER LIMB EXERCISES IN STROKE PATIENTS

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¹Manchester and Leeds, ²Leeds, United Kingdom

Aim: To develop and evaluate a robotic device (hCAAR) that can be used independently at home by stroke survivors with upper limb weakness. *Methods:* Stage 1: hCAAR development. Nine stroke survivors and six healthcare professionals were involved in user-centred device development process. hCAAR consists of a powered joystick with a computer interface, which provides controlled assistance to the upper limb performing therapeutic movements. Stage 2: Feasibility clinical study. 19 participants (stroke survivors with upper limb weakness) were recruited. Clinical outcomes performed at baseline (A0), at end of 8-weeks of hCAAR use (A1) and 1 month after end of hCAAR use (A2) were: Optotrak kinematic variables, Fugl Meyer Upper Extremity motor subscale (FM-UE), Action Research Arm Test (ARAT), Medical Research Council (MRC) and Modified Ashworth Scale (MAS), Chedoke Arm Hand Activity Inventory (CAHAI), ABILHAND and participant/carer/therapist qualitative feedback. *Results:* No serious adverse events were reported. Two participants were unable to use hCAAR: one due to severe paresis (FM 6/66); and the other due to personal problems. The remaining 17 participants were able to use the device independently in their homes. Median time since stroke 26 months (IQR 6–34 months). Median usage time 433 minutes (IQR 250–791 min). A statistically significant improvement was observed in kinematic and clinical outcomes at A1, which were maintained at A2. Median gain at A1 was by: movement time 19%, path length 15% and

jerk 19%, FM-UE 1 point, total MAS 1.5 point, total MRC 2 points, ARAT 3 points, CAHAI 5.5 points and ABILHAND 3 points. Three participants showed clinically significant improvement in all the clinical outcomes. Five participants reported improvement in functional ability in daily activities. Participants, family members and therapists were satisfied with the usability of hCAAR in the home setting. *Conclusion:* A home-based restorative rehabilitation robotic device hCAAR has been developed using a user-centred design process. The feasibility study is the first clinical study of its kind reported in the current literature; 17 participants used the robotic device independently for eight weeks in their own homes with minimal supervision from healthcare professionals. Statistically significant improvements were observed in the kinematic and clinical outcomes.

IL23

THE DEVELOPMENT AND USE OF NEW TECHNOLOGY IN EVIDENCE-BASED PRACTICE AFTER STROKE

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Background: A key component in successful development of technology within rehabilitation is the collaboration between patients, clinicians, technicians and researchers in the development and evaluation process. The Department of Rehabilitation Medicine, Danderyd University Hospital, Stockholm, Sweden (DRM DH) has long-term experience of such collaborations. One main focus has been to develop tools that will optimize the evidence based training after stroke, i.e. high intensity and task specific training including successive approximation with respect to the patient's capabilities. *Methods:* Currently DRM DH is involved in stroke research including collection of end-users' needs and requirements, iterative development processes as well as the testing of the feasibility and safety of new developed technology in a clinical or home-based setting and planning and performing randomized controlled trials. Ongoing projects are 1) Gait training early after stroke – a comparison between training with the exoskeleton Hybrid Assistive Limb (HAL) and conventional gait training, 2) An interactive distance solution for movement training after stroke in the home setting, based on modern information and communication technology (the DISKO and STRADA projects), and 3) HandInMind - Development of a glove for support and training of impaired hand function after stroke. *Results:* The HAL has been found to be feasible and safe to use in a clinical setting after stroke. An ongoing RCT shows promising results and multicenter RCT will be launched in 2016. The interactive distance solution tool has been found to be feasible and safe for use in the home-setting and in an iterative process the tool is now developed further and potential rehabilitation effects will be studied. In the HandInMind projects focus groups with patients have been held, a soft tissue glove has been developed and will be tested. *Conclusion:* Our experiences of collaboration between patients, clinicians, technicians and researchers in the development of new technology are most promising. They also demonstrate that rehabilitation medicine may play a key role in coordinating health care, academia and business actors in the development and evaluation of new technology that may support intense training as well as everyday life activities after stroke.

IL24

TECHNOLOGY ENHANCED UPPER LIMB REHABILITATION

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**SYMPOSIUM 3:
THE JOURNAL OF REHABILITATION
MEDICINE SYMPOSIUM:
STROKE REHABILITATION**

IL25

**CONTENT OF REHABILITATION IN STROKE
UNITS**

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Newcastle University, UK

Stroke units are an essential component of evidence-based stroke care as they reduce the risk of death or dependency by 5.6% when compared to care on a general ward. This benefit is seen regardless of the patients' age, gender, or stroke severity. In the UK we aim to admit all acute stroke patients to a stroke unit where they are cared for throughout their in-patient stay. The European Stroke Organisation Guidelines state that a stroke unit should consist of a discrete area of a hospital, usually a ward, which cares exclusively (or almost exclusively) for stroke patients. Mobile stroke teams are not an effective service. The stroke unit should be staffed by a multidisciplinary team who specialise in stroke care and which works in a co-ordinated way through regular meetings to plan patient care. The core disciplines of a stroke multidisciplinary team include: medicine; nursing; physiotherapy; occupational therapy; speech and language therapy and social work. Access to psychological services is also important. There are different stroke units models. Hyperacute stroke units provide rapid diagnosis, investigation and access to hyperacute treatments such as thrombolysis and clot retrieval. Stroke rehabilitation units admit medically stable patients and provide rehabilitation until discharge. A comprehensive stroke unit provides both acute care and rehabilitation. Education of staff, good protocols which are effectively implemented and audit are important components of ensuring that high quality evidence based care is delivered. Seeking information about the experiences of patients and carers who use the service is very helpful when developing or evaluating a service. Research has shown that clinical outcomes can be improved by doing the basics well. This includes management of dysphagia, fluids and nutrition, early assessment by a nurse, therapist and doctor and prescribing antiplatelets for acute ischaemic stroke. Stroke unit care also reduces the rate of complications such as chest infection, falls, and pressure sores. When a patient is ready for discharge the next component of evidence-based stroke care is early supported discharge (ESD) where a stroke specialist team provides rehabilitation in the patients' home. ESD reduces death or dependency following stroke by 5.5%.

IL26

**DEVELOPMENT OF EUROPEAN EVIDENCE-
BASED RECOMMENDATIONS FOR
EVALUATION OF THE UPPER LIMB IN
NEUROREHABILITATION**

Jane Burridge, MD¹, Ann-Marie Hughes, PhD¹, Margit Alt Murphy, PhD², Annick Timmermans, PhD³, Sofia Barbosa Bouças, PhD⁴, Ilse Lamers, PhD⁴, Peter Feys, MD⁴, Verena Klamroth-Marganska, PhD⁵, Carol Resteghini, MSc⁷, Gerdienke Prange, PhD⁷, Jaap Buurke, PhD⁷

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versity of East London, UK, ⁷Roessingh Research and Development, Netherlands University of Twente, The Netherlands

Background: Although use of standardized and scientifically sound outcome measures is highly encouraged in clinical practice and research, there is still no clear recommendation on which tools should be preferred for upper limb assessment. Agreement on measures in neurorehabilitation is also required to facilitate multi-center research and meta-analysis. The European Network on Robotics for Neurorehabilitation, funded by the European Co-operation in science and technology (COST) action is developing evidence-based recommendations for evaluation of the upper limb in neurorehabilitation. The primary aim of the recommendations is to improve the quality of upper limb neurorehabilitation through the adoption of standardized, agreed protocols for assessment and choice of measurement tools in research and clinical practice. The secondary aim is to inform and influence the development of new upper limb neurorehabilitation technologies both as therapies and assessment tools and to translate useful technologies into clinical practice. **Methods:** The recommendations will incorporate 3 sources of evidence: systematic reviews of upper limb outcome measures, current clinical guidelines and Delphi consensus methodology in stroke and neurorehabilitation. **Results:** Systematic reviews: From 13 systematic reviews, 53 measures were identified of which 13 met the standardized criteria for the psychometric properties. The strongest level of measurement quality and clinical utility was demonstrated for Fugl-Meyer Assessment, Action Research Arm Test, Box and Block Test, Chedoke Arm and Hand Activity Inventory, Wolf Motor Function Test and ABILHAND. Clinical guidelines: Both National and published guidelines recommend assessment within the ICF framework. The National Guidelines provide little guidance on assessment beyond that valid, reliable and responsive measurement tools should be used by trained personnel. Delphi consensus: Consensus recommends a framework for assessment including categories and, where possible, specific measures (clinical and technology-based), definition of a minimum set of measures, duration and frequency for assessments. **Conclusions:** The final recommendations will include the purpose of assessment, recommendations on when and by whom assessments should be conducted, how long an assessment should take and what measures and tools should be used. Recommendations are made for clinical practice and research separately. A minimum set of measures will be recommended for use with all patients undergoing upper limb neurorehabilitation.

IL27

**EARLY SUPPORTED DISCHARGE AFTER
STROKE**

Mauro Zampolini, MD, PhD

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**SYMPOSIUM 4:
QUALITATIVE RESEARCH IN
REHABILITATION MEDICINE**

IL28

**LEARNING FROM THE PATIENTS'
PERSPECTIVE IN DEVELOPMENT TOWARDS
A PATIENT-CENTERED REHABILITATION.
INTRODUCTION TO QUALITATIVE RESEARCH
IN REHABILITATION**

Monika Löfgren, RPT, PhD

Karolinska Institutet, Department of Clinical Sciences Danderyd University Hospital, Stockholm, Sweden

In rehabilitation medicine the interest about qualitative research is growing. Knowledge about how people adjust from being healthy

and independent to live and cope with impairments and dependency influence rehabilitation methodology. Qualitative methods provide us with knowledge beyond the traditional measurements. With qualitative methods, knowledge increases on experiences, attitudes and perceptions. With qualitative methods we are able to learn about the rehabilitation process from the view of patients. This will help in improving clinical rehabilitation for the future, towards a patient-centred rehabilitation. The presentation will give an overview of important aspects when conducting qualitative research, the underlying scientific perspective, common qualitative methods, scientific rigour and advantages and disadvantages.

IL29

QUALITATIVE RESEARCH: CHILDREN'S PERSPECTIVES, CEREBRAL PALSY

Dawn Pickering, MSc Child Health

Senior Lecturer, Cardiff University, Wales, UK

This presentation will draw upon data from two studies to represent the child with cerebral palsy's voice. Firstly, from a pilot study that explored the effects of adapted cycling, where 35 children kept a diary of their cycling activities and took part in 2 interviews. Interviews were developed utilising a Mosaic approach where a variety of creative methods were applied. Some responded to puppets and used drawings to illustrate what cycling meant to them. The data were analysed using a template approach and 2 researchers reviewed the emergent themes. As this was a mixed methods study, qualitative data added to the statistical findings: the children who cycled, their quadriceps muscles got stronger. Without collecting this additional qualitative perspective, the emotional impact of such a 'Fun' recreational activity would have been missed. The children voices would not have been heard without this trustworthy method. Secondly, 2 case studies will be presented using Interpretative Phenomenological Analysis as an approach to explore what 'Participation' in recreational activities means to them. This data represents 2 females aged 9 and 21 years. This includes data analysis of a digital story, 2 interviews and a 3 month diary. The analysis here utilises a descriptive, conceptual and linguistic dimension. This multi-dimensional view uses metaphors as a means of explaining the child and young person's experiences. A particular metaphor relates to a 'Dragon' being slain as surgery slays 'Spasticity'. The hybridity of childhood cerebral palsy, with its multi-faceted management, is described from a child and young person's perspective. These findings suggest a 'wheel of participation' where the different contexts of 'Participation' can support or hinder the disabled child's inclusion. To provide a choice of recreational activities can promote physical health and emotional well-being outcomes. By hearing the voices of disabled children and young people, healthcare practitioners can fulfil their 'moral imperative' to listen to the disabled child. Other health and social care policy makers can also respond to their voices by considering their physical health and emotional well-being needs. The aim being to enable the child or young person to self-manage their long-term health condition into adulthood.

IL30

PARTICIPATION OF PEOPLE WITH ACQUIRED BRAIN INJURY: INSIDERS PERSPECTIVE

Karen Schipper, PhD

VUmc/EMGO, Amsterdam, The Netherlands

Participation is an important goal in the rehabilitation of people with acquired brain injury (ABI). Studies have shown that the participation of people with ABI may be difficult. Information on how people with ABI experience their participation was however missing. This presentation aims to answer the question how people with ABI experience participation and which environmental and personal factors may influence participation, as perceived by people with ABI. The results are based on a qualitative study consisting of

interviews and focus groups, conducted by researchers and patients with ABI/parents of patients with ABI. The people with ABI contend that it is not the degree of participation that matters, but the quality of participation. They describe meaningful participation in terms of taking part, giving something and being someone. Participants mentioned several factors that, according to their experiences, influence participation. These factors were translated into a model that will be presented. This model, which includes personal and environmental factors that, in interaction, may influence participation gives insight in how the rehabilitation process of people with ABI can be improved in order to increase their (social) participation.

IL31

"CULTURAL ACTIVITIES ON THE RECIPES" FOR PEOPLE WITH LONG-TERM PAIN

Georg Drakos, PhD

Stockholm University, Sweden

Based on a performance-oriented approach, this study explores how the transformations of a painful body can be understood in terms of different attitudes to time and space as structuring elements in a double sense. The presentation will problematize the participants' ability to master their own pain by shifting one's own subjectivity of everyday life into new worlds formed in art experiences or own creation. I will discuss three interwoven processes that make this form of complementary rehabilitation visible. The first process involves the patient passed out of the care-defined context of meaning to activities outside of health care. This is a reverse process in relation to what happens when the body is reframed to exclude some of its symbolic properties in the clinic context. [1] The second process aims at moving from the everyday world to the various contexts of meaning that the cultural activities offer. For people who suffer from chronic pain everyday life is often dominated by pain [2]. The activities offer them new tools to manage time and space. The third process is challenged by the fact that suffering like pain exists in part beyond language. Pain and suffering have a tendency to deprive people of their voice in everyday life [3]. Suffering seems to have a tendency to be turned inwardly towards a muted inside, while the narrative is directed against an outer surface [4]. Therefore the participants' narratives are important tools that can turn a painful identity to good self-esteem.

References: [1] Young, Katharine G. 1997. Presence in the flesh: The body in medicine. Cambridge: Harvard University Press. [2] Good, Byron J. 1994. A Body in Pain – The Making of a World of Chronic Pain. In: Mary-Jo Delvecchio Good, Paul Brodwin, Byron J. Good & Arthur Kleinman (eds.) Pain as Human Experience: An Anthropological Perspective. Berkeley: University of California Press. [3] Morris, David B. 1997. Voice, Genre, and Moral Community. In: Social Suffering. Arthur Kleinman, Veena Das, and Margaret Lock (eds.) Berkeley: University of California Press. [4] Hyden, Lars-Christer & Brockmeier, Jens 2008. Health, Illness and Culture: Broken Narratives. New York: Routledge.

TRACK 2, PART 3:

HABILITATION – TRANSITION FROM CHILDHOOD TO ADULTHOOD AND SPECIAL ISSUE LECTURES

IL32

IMPROVING YOUNG PERSONS' ENGAGEMENT IN THE TRANSITION PROCESS AND THEIR OVERALL HEALTHCARE

Rory O'Connor, MD, PhD

Academic Department of Rehabilitation Medicine, University of Leeds and Leeds Teaching Hospitals, NHS Trust, Leeds, UK

IL33

ORTHOPEDIC REHABILITATION OF ADULT PATIENTS WITH CEREBRAL PALSY***July Treger, MD, PhD, MHA****Soroka Medical Center, Rehabilitation Department, Ben Gurion University of The Negev, Beer Sheva, Israel*

Introduction: Although frequently addressed during pediatric rehabilitation care, different orthopedic problems still prevail in adults with cerebral palsy (CP). Functional deterioration and high level of orthopedic injuries is noted in the aging adult with CP particularly those with abnormal movement patterns during ambulation. Orthopedic care and rehabilitation of those patients has not been well documented in the professional literature. The aim of the study was to determine the orthopedic problems experienced by adults with CP, which bring them to inpatient rehabilitation settings and to investigate the effectiveness of the rehabilitation treatment. **Materials and methods:** For 7 years of the study 9 adult patients with CP were treated in orthopedic department of Loewenstein Hospital Rehabilitation Center (LHRC). All of them were admitted because of functional deterioration due to different compliances. Mean age of the patients was 36.4±13 (20 to 62) years. Length of stay (LOS), main reason of the hospitalization, level of ambulation before the functional deterioration and at discharge was registered. **Results:** LOS was 30.7±19.3 days. The reason of admission in 4 patients (44.4%) was different orthopedic operations due to deterioration of ambulation level (1 total hip replacement, 1 wedge osteotomy, 2 muscle releases). 2 patients (22.2%) were injured at falls (hip fracture and brachial plexus injury). 2 patients (22.2%) reduced their ambulation level due to prolonged inactivity without any trauma or orthopedic intervention. One patient (11.1%) developed abscess after old ankle arthrodesis. All patients were ambulating independently with different aids through their adult life before the deterioration and all of them were on wheel chair at admission. In 8 patients (88.9%) independent ambulation was achieved till the discharge. All patients returned home after the inpatient rehabilitation period and continued treatment in appropriate community based settings. **Conclusions:** Adult patients with CP can be admitted to orthopedic inpatient rehabilitation due to loss of ambulation ability as a result of different general and orthopedic compliances. The orthopedic inpatient rehabilitation can be very effective in this population and can rebuild the independent ambulation ability in most of them.

IL34

USE OF ADMINISTRATIVE DATA TO EVALUATE THE BENEFIT OF RETURN-TO-WORK PROGRAMS***Matthias Bethge, ProfDr****Institute of Social Medicine and Epidemiology, University of Lübeck, Lübeck, Germany*

Return-to-work programs are provided to working age individuals with health-related impairments, limitations or restrictions with work functioning. These programs are delivered in different settings and comprise different services and activities. Their ultimate goal is to optimize work participation. Rehabilitation service research aims on the evaluation of the effectiveness of such programs under routine conditions. A major challenge is that randomized controlled trials are usually not feasible in the evaluation of already implemented strategies. In this case, longitudinal administrative data might be an important source for effectiveness studies. Administrative data have the advantage of the complete, reliable and valid assessment of the primary outcomes of return-to-work programs (e.g. income from regular employment, disability pension, sickness benefits). I will present two studies in which

we analyzed the effects of return-to-work programs by large administrative datasets. The first study is on graded return-to-work, the second is on vocational retraining programs. I will show that propensity score matching is a valuable tool for the purpose of an effectiveness study using administrative data. Most importantly, propensity score matching allows us to determine the figures that we know from randomized controlled trials (e.g. number needed to treat) and need for appropriately communicating the benefits and harms of an intervention.

SPECIAL ISSUE LECTURES, SESSION 2: DYSPHAGIA MANAGEMENT

IL35

TEAMWORK – ROUTINE OR CHALLENGE IN REHABILITATION OF SPEECH AND SWALLOWING DISORDERS***Anne Uriko and the team from the Centre of Speech and Swallowing Disorders****Estonia*

IL36

DYSPHAGIA MANAGEMENT – EXPERIENCE IN RUSSIA***Olga Kamaeva, MedDr****Pavlov First Saint Petersburg State Medical University, Russia*

Stroke services have been significantly developed in Russia during recent years. A Federal Stroke Programme has been in place since 2007. Russian national guidelines for the management of patients with stroke include recommendation that an assessment of swallowing should be made in the first 3 hours after admission to hospital (Order of 15.11.2012 N 928n). It is indicated that all stroke patients should be screened by nurses for potentially serious swallowing problems before being given food or drink. This recommendation highlights the necessity for nurse training so that they can recognise the signs of dysphagia, and take immediate and appropriate action. Swallowing problems need a Multidisciplinary Team Approach. At present in Russia it recognized that Speech therapists have a leading role in the Management of Dysphagia. Through a series of educational programs in the framework of the Russian-British cooperation in the field of neurology, there are now several swallowing specialists in Russia who are able to conduct short courses for speech therapists and nurses, working with neurological patients. The problem is that identification of dysphagia is not included in nurse training, and swallowing assessment and management are still not included in the undergraduate training of speech therapists, and a short courses do not provide enough knowledge and practical skills. Guidelines for the management of patients with dysphagia were developed and established in Russia in 2013. Not all experts equally value either the content or form of these recommendations. However, the number of complications associated with swallowing disorders significantly reduced in those hospitals where the initial care for all people who have had a stroke includes: 1) screening for risk of food or fluid getting into the lungs; 2) clinical assessment of dysphagia; 3) multidisciplinary team discussion in order to form a care plan; 4) appropriate diet or/and early commencement of nasogastric feeding (Evidence level Class II, Level B) (ESO, 2008); 5) early activation.

ORAL FREE PRESENTATIONS

OP1

THE USABILITY OF A ROBOT IN BRAIN INJURY REHABILITATION**Inga-Lill Boman, OTR, PhD***Department of Clinical Sciences, Danderyd University Hospital, Karolinska Institutet, Stockholm, Sweden*

Background: Robots are developing rapidly and could be used for training and support in everyday activities. However, only a few studies have investigated the usability of a robot in real environments. The aim of this pilot study was to evaluate the usability of a mobile telepresence robot in a hospital training apartment, in a rehabilitation clinic in Stockholm. **Method:** The robot is driven remotely via a computer and pc-mouse. The occupational therapists (OTs) and nurses who were involved in using the robot at the training apartment received training in how to use it. Then the nurses were asked to answer a questionnaire regarding their perceptions of using the robot in their work. The OTs and patients who were staying in the training apartment were interviewed about their experiences of the robot. Interviews were analyzed with content analysis and questionnaires were analyzed with descriptive statistics. **Results and Conclusions:** The patients reported to be very satisfied with the robot. Although OTs and nurses reported mostly positive experience with the robot, they also reported that a more user-friendly design could be more helpful to their work. The main obstacle for the nurses was the need for fast and easy access in emergency situations while protecting the patients' integrity. The results indicated that the robot could be a useful tool to support daily living skills and safety monitoring of patients in the training apartment. When designing technology with motion capabilities for health care purposes, there is a need to evaluate the needs of all users involved in the care.

OP2

FIRST STEPS IN DESIGNING AN ALL-IN-ONE DEVICE FOR PERSONS WITH COGNITIVE IMPAIRMENT**Inga-Lill Boman, OTR, PhD¹, Ann-Christine Persson, OTR²***¹Department of Clinical Sciences, ²Department of Rehabilitation Medicine, Danderyd University Hospital, Stockholm, Sweden*

Background: Research has shown that persons with cognitive impairment after acquired brain injury might need several devices for support in everyday activities. However, a problem is that they often need support from significant others (SOs) to be able to learn and to maintain several devices. It has been pointed out in the literature that SOs often have a huge burden to support persons with cognitive impairment in their everyday life. This project intends to develop an all-in-one device to support everyday activities for persons with cognitive impairment and their SOs. The aim of this study was to examine the usability of an all-in-one mock-up device for persons with cognitive impairment. **Method:** A participatory design focus was chosen. First the intended users' need of an all-in-one device for cognition was examined through a scoping review. This led to an understanding of problems and possibilities that persons with cognitive impairment might have in using devices for cognition. In order to validate the results focus groups with persons with cognitive impairment, SOs and formal caregivers were conducted. Based on the results from the scoping review and focus groups a user requirement specification of the design was developed. In the next step a design concept was developed in an iterative design process and a first mock-up was developed. This study presents the evaluation of an all-in-one device mock-up, demonstrated in a tablet. Interviews with persons with cognitive impairment, SOs to persons with cognitive impairments and health care professionals were conducted. Data were analyzed using content analyses. **Results and Conclusions:** The

main benefit of the mock-up was that multiple functionalities were included in a single device. An additional benefit was that information could be shared with SOs. The participants appreciated the design and the functionalities: Contacts, Calendar, Monitoring, Video Call, Pill Box, Care plan, Help me, and Settings. The results may provide guidance in the development of different types of technologies for the target population and for people with diverse disabilities.

OP3

WHAT MAKES UP A SUCCESSFUL REHABILITATION INSTITUTION? RESULTS FROM THE MEER-PROJECT**Thorsten Meyer, PhD, Maren Zeisberger, Dipl-Psych, Vera Kleineke, MPH, Iris Brandes, PhD, Maren Stamer, PhD***Integrative Rehabilitation Research Unit, Institute for Epidemiology, Social Medicine and Health Systems Research, Hannover Medical School, Hannover, Germany*

Quality assurance data indicate differences among rehabilitation institutions with regard to patient outcome that cannot be accounted for by known variables. The aim of the Meer-project was to identify characteristics of rehabilitation institutions that could contribute to understanding differences between institutions with regard to patient outcome. We conducted a comprehensive qualitative study embedded into a mixed-methods project. Based on qualitative assurance data of the German statutory pension insurance scheme we developed an index of rehabilitation success. Rehabilitation institutions were ordered in a league table according to their mean degree of success after adjusting for case-mix of the patients. Institutions of the upper 10% and lower 10% were identified. Six of those were included to take part in a 1-week visitation of two members from our research team, four from the domain of musculoskeletal rehabilitation, two from cardiac rehabilitation. During our visitations we conducted focus groups with professionals, focus groups with patients, individual interviews with directors (medical and administration), as well as a number of participant observations (from perspectives of the patient and professionals). Analysis was based on contrasting findings of the upper-level success vs. lower-level success institutions. Three main categories emerged as depicting substantive difference between institutions. They relate to aspects of interdisciplinary team work, of goal setting (especially in relation to the degree of participation of patients) and of conceptual issues, e.g. in terms of continuity of care, overarching ideas about rehabilitation, involvement of team member in concept development. Results on interdisciplinary team-work will be focused in the presentation, including lived hierarchies, integration of rehab team members in team meetings, special role of physicians within the rehab team, reciprocity of relationships or communication, role of self-concept of different professions for the rehab-team. The Meer project highlighted – besides others – the important role of interdisciplinary team-work for the success of rehabilitation in terms of patient outcomes. It appears to be worthwhile to introduce measures or activities to improve interdisciplinarity within the rehabilitation team.

OP4

TEAM COACHING OF INTERPROFESSIONAL REHABILITATION TEAMS**Mirjam Körner, MedDr¹, Manfred Rundel, Dipl-Psych², Christian Müller, BA¹, Linda Zimmermann, MedDr³, Sonja Becker, MSc¹***¹University Freiburg, Medical Faculty, Medical Psychology and Medical Sociology, Freiburg, ²Celenus Clinics GmbH, Offenburg, ³Moving Concept, Freiburg, Germany*

Interprofessional teamwork is a major factor for quality and success in rehabilitation clinics. However, there are only a few interventions to support teamwork in rehabilitation. The aim of the study was to develop, implement and evaluate a team intervention to enhance teamwork of interprofessional rehabilitation teams. In a pilot study we made interviews with 19 executives and 35 team members of rehabilitation teams in order to conceptualize the intervention. As the needs and concerns of rehabilitation teams were very heterogeneous in this pilot study, we concentrated on developing a needs-specific, task-related, solution-focused and context-orientated intervention. The standardized process of this team coaching comprised 4 steps: 1) clarifying the contract, 2) identifying the aim, 3) developing the solutions, and 4) sustaining the solution. In order to evaluate the approach, a cluster-randomized controlled study was conducted. Teamwork was measured with a staff survey before and after implementing the team coaching in the intervention clinics. Ten teams from different rehabilitation clinics participated in the study. The team intervention was tested in 5 of the 10 interprofessional health care teams. One pair of the clinics was excluded from the analysis due to negative effects of the team coaching in the intervention clinic. The evaluation based on 114 staff members in the intervention group, and 133 in the control group at the first data collection period. In the second data collection period 99 staff members in the intervention and 79 in the control group participated. The evaluation results showed an enhancement concerning team organization ($F(1,243)=6.51, p=0.01, \eta^2=0.19$), willingness to accept responsibility ($F(1,243)=5.52, p=0.02, \eta^2=0.16$) and knowledge integration ($F(1,243)=4.7, p=0.03, \eta^2=0.14$). Based on this results it can be concluded that team coaching is an effective strategy for improving teamwork in health care practice. However it is a complex intervention and there are several preconditions necessary for successful implementation. Further evaluation of the team coaching concept and the development of a train-the-trainer approach are planned.

OP5

CHALLENGES OF INTERDISCIPLINARY TEAM IN MEDICAL REHABILITATION: ROLE OF SOCIAL WORK

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The Department of Rehabilitation, Physical and Sports Medicine was established at Vilnius University in 1991, and was assigned with a task to train and educate rehabilitation specialists, carry out research with a view to enhancing the effectiveness of rehabilitation. Education of social workers was established in 1992 at Vytautas Magnus University. The problem is the social work's role recognition in health care as it comes with the holistic approach which is uncertain for health professionals who are used to a biomedical approach. Transferring teamwork knowledge and values becomes complicated in the practice because rehabilitation and social work students' lack of possibilities to learn collaboration, teamwork skills. Paper based on the results of the research implemented at VMU and VU during last 8 years. The emphasis has been put on communication peculiarities and possibilities for the interdisciplinary collaboration between different professionals in health care. The theoretical framework of the research is based on the Tomlinson's concept of "unity environment", tacit and explicit knowledge, Bourdieu and social construction theories, on Coleman's and Gendron's theories of social and emotional capital. Various approaches are needed because of changes in the concept of health, the educational paradigm and professional practice, inspired by the knowledge society. Mentioned changes require competences allowing to teamwork. The goal is to reveal learning possibilities of the different professionals working together in the multidisciplinary rehabilitation team. The objectives are: to discuss demands for the interdisciplinary team; to analyze practitioners and students ability to use the supportive collaboration for practice reflection and creating practical know-

ledge; to underline the tendencies and prospects of supervision for reflection - to reconsider complexity of practice and personal experience. Ignorance of patients may be related to the problem of the aim of the team – specialists of different fields do not see any need to unite. This is the principal barrier in the process of team formation, impeding the development of cooperation-based relationships with people to whom assistance is oriented to empower for changing the situation. Tacit and explicit knowledge are important for reflection in every professional practice, supervision helps to understand how knowledge are transferred and recognized in interdisciplinary team.

OP6

REHABILITATION PLANNING USING ICF CRITERIA

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The International Classification of Functioning, Disability and Health (ICF) is an international, multidisciplinary, consensus-driven framework and classification system of health and disability supported by the World Health Organization. ICF-implementation process was started in 2011 in the Riga city council and Rehabilitation center "Mes esam lidzas". *Objectives:* to explore and analyze: 1) functioning, activities, participation of a child with Cerebral Palsy (CP) using ICF-CY Model (WHO, 2007), 2) Rehabilitation Problem Solving Form (Steiner et al., 2002) as communication tool in CP program to provide patient centered rehabilitation approach and to structure decision-making process. *Materials and Methods:* A multi-professional rehabilitation team provided a detailed assessment of an 8-years-old child with spastic bilateral Cerebral Palsy (CP). ICF Categorical profile and Rehabilitation Problem Solving Form (RPS-F) based on functional evaluations was completed. To avoid subjective decisions activity-focused assessment tools were used: Gross Motor Function Classification System (Palisano et al., 1997). Manual Ability Classification System (Eliasson et al., 2006). Viking Scale (Pennington et al., 2010). Communication Function Classification System (Hidecker et al., 2011). Gross motor function measure (Russell et al., 2013). PEDI parts II and III- Caregiver Assistance and Modification (Haley et al., 1992). *Case presentation:* We will use a video example, it will describe a boy with cerebral palsy, his levels of functioning and the supports he requires at home and at school. The development of RPS-Form will be presented. *Conclusions:* 1) Use of ICF structure and evidence based functional level assessment tools -GMFCS, MACS, CFCS, Viking scale, as well as use of GMFM and PEDI scales help to quantify the impairment, capacity limitation and performance limitations of the individual with CP. 2) The RPS-Form can be used to identify specific target problems, set realistic goals and plan the most appropriate interventions for CP children. 3) Use of this form can facilitate cooperation among parents of children with CP and medical, social and education sectors of municipality.

OP7

PSYCHOMETRIC PROPERTIES OF THE FUNCTIONING SCALES FOR THE LATVIAN CLINICAL PERSONALITY TEST (LCPT)

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Introduction: Our aim was to develop the functioning scales for the Latvian Clinical Personality Test (LCPT) in order to assess some aspects of body functions, activities and participation along with the mental disorders. The development of the initial item pool was grounded in the International Classification of Functioning, Disability, and Health (ICF). The selected core sets from ICF were formu-

lated as questionnaire items and given for review to an expert panel; 110 items were identified as suitable to undergo further psychometric testing. *Methods:* The sample consisted of the clinical group – adult patients from the psychiatric clinics ($n=179$, mean age 40.88, 55% male), patients from rehabilitation centres ($n=67$, mean age 46.01, 57% male), and non-clinical group ($n=395$, mean age 39.09, 38% male). After signing an informed consent form, participants filled out initial version of LCPT, WHODAS 2.0 and demographic questions. This study is a part of the National Research Programme (No. 5.8.2.). *Results:* LCPT functioning scales were established using sequential PCA with Varimax rotation; this yielded 10 factors: Physical well-being ($k=5$), Memory functions ($k=4$), Energy level ($k=5$), Sleep functions ($k=4$), Respect and warmth in relationships ($k=4$), Regulation of emotions/Anger control, ($k=4$), Working capacity ($k=4$), Solving problems ($k=5$), Starting and sustaining a conversation ($k=5$), Life Mastery & Time management ($k=6$). All the LCPT functioning scales show high internal consistency (Cronbach's alpha varied from 0.70 to 0.85) and acceptable item-level psychometric properties. ANOVA analysis show statistically significant differences in 9 LCPT functioning scales between all 3 groups, approving criterion validity of these scales. Concurrent validity of LCPT functioning scales is approved based on the obtained expected correlations with WHODAS 2.0 scales. *Conclusion:* Using a clear conceptual basis and sound psychometric analysis, 10 functioning scales for the LCPT are developed. Reliability, construct, criterion and concurrent validity of these scales is approved. A combined analysis of psychopathology symptoms and functioning using one clinical personality test is very promising and will be useful in many assessment contexts. *Keywords:* ICF, functioning, body functions, activity and participation, rehabilitation, psychopathology, psychometric properties, clinical personality test.

OP8

CHARACTERISTICS OF PATIENTS AT FIRST VISIT TO A POLIO CLINIC IN SWEDEN

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Aim: Describe polio patients visiting a polio clinic in Sweden, a country where vaccination was introduced in 1957. *Design:* A consecutive cohort study. *Patients:* Prior polio patients. *Methods:* All patients ($n=865$) visiting the polio clinic at Sahlgrenska University Hospital, Gothenburg Sweden, between 1994 and 2012 were included in this study. Data at first visit regarding patient characteristics, polio classification, data of electromyography, nationality, gait function and gait speed as well as muscle strength were collected for these patients. Twenty-three patients were excluded because no polio diagnosis could be established. A total of 842 patients with confirmed polio remained in the study. Results of the study will be presented at the conference.

OP9

MULTIPLE IVIG TREATMENTS IN POST-POLIO – SELF SELECTION OF POSITIVE RESPONDERS?

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Introduction: Fatigue, pain and muscle weakness are the most common symptoms in post-polio (PPS). The inflammatory process

identified in PPS patients were down-modulated by means of IVIG followed by an improvement in vitality, pain and muscle strength. A positive response after IVIG has been defined as an increase of 11 points or more on SF-36 Vitality and Bodily-pain. Some PPS patients have been given two or more IVIG treatment. It is unknown if this group differ from PPS patients who had received only one IVIG. The hypothesis is that PPS patients who have received two or more IVIG treatments are positive responders due to self selection. The aim of this study is to identify these PPS patients as either positive or non-responders. *Material and Method:* Open trial prospective follow-up study. Included in the study were 44 patients with PPS who had been given two or more IVIG treatment and who had answering SF-36 before treatment and after 6-month. Data from clinical examination, Quality of life inventory Short form 36 (SF-36), Physical Activity Scale for the Elderly (PASE) and Visual Analogue Scale (VAS-pain) were obtained before treatment and at 6 month follow-up. Data from clinical records were collected after first treatment. A change of 11 points or more on SF-36 Vitality and Bodily pain defined a positive responder. *Results:* Sixty-seven percent of the participants were positive responders with Vitality and/or Bodily pain as outcome; the majority was women, under 65 years of age, had a VAS pain score above 20 and considered their health as much/some worse compared with a year ago before treatment. After 6 month the majority had a VAS pain score below 20 and considered their health as much/some-what better. Quality of life was significantly improved after 6 month with both outcomes. *Conclusion:* A majority of the participants who received more than one IVIG treatment were positive responders. In the future it is important to follow positive responders on individual level in order to identify response patterns.

Keywords: IVIG, positive responders.

OP10

IVIG IN PATIENTS WITH POST-POLIO - RESPONDER GROUP CHARACTERISTICS

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Introduction: The most common symptoms in post-polio (PPS) are fatigue, pain and muscle weakness. An inflammatory process in the central nervous system has been identified in PPS patients. This process was down-modulated by means of IVIG and was followed by an improvement in vitality, pain and muscle strength. When studying cohort of patients there are indication of a positive outcome but no studies have been successful in pinpointing responders after IVIG treatment. The aim of this study was therefore to characterize responder groups in 124 post-polio (PPS) patients after one IVIG treatment. *Material and Methods:* Open trial, prospective follow-up study. Data from Quality of life inventory Short form 36 (SF-36), Physical Activity Scale for the Elderly (PASE) and Visual Analogue Scale (VAS-pain) were obtained before treatment and at 6-month follow-up. Data from medical records and clinical examination were collected before treatment. SF-36 Vitality and Bodily pain were chosen as outcome variables. *Results:* Forty-five percent of the participants were positive responders with Bodily pain and/ or Vitality as outcome, identified before treatment by higher level of fatigue, a VAS pain score above 20, muscle atrophy in lower extremities and a reduced physical function. Negative responders were identified by low levels of fatigue and pain, lesser muscle atrophy in lower extremities a good physical function and good mental health. *Conclusions:* In order to maximize a positive outcome it is suggested to select patients with a high level of fatigue and pain and a reduced physical function. Negative responders may not fulfill the criteria for PPS.

Keywords: prior-polio, post-polio syndrome, IVIG, responders, non-responders, fatigue, pain, VAS score, physical function.

OP11

GROWING UP READY; GIVE ME WINGS THAT WILL CARRY ME. HOW TO PREPARE FOR AN ADULT LIFE WITH A RARE DIAGNOSIS

Marie Hoff, MedDr, Eli Døvresodegård Skattebu, Representing The Norwegian Association for Spina Bifida and Hydrocephalus, Kjersti Vardeberg, OT Sunnaas Rehabilitation Hospital, Nesoddtangen, Norway

The aim of this presentation will be to describe a model for preparing children with rare diagnosis for their adult life. The Norwegian National Advisory Unit on Rare Disorders was established in 2014, and includes nine centres working with different diagnosis. People with rare disorders say being rare means: lack of knowledge and understanding, isolation, complex and compound needs, and that the nature of rarity creates extra challenges in meeting needs of people with rare disorders. How do we provide enough knowledge and know-how on a local level? We will present the main tasks of the centers, and how the advisory unit can support the local services. Children with disabilities and rare diagnosis survive and grow up, and expect to live a meaningful life. We have seen that many of them are poorly prepared to take responsibility, decisions, risks and consequences of their actions. The gap in quality on health service in childhood and adult life is associated with bad health. As an example of our working method, we will present how youngsters with spina bifida are introduced to and prepared for the adult life: The Norwegian Association for Spina Bifida and Hydrocephalus have translated and introduced a Canadian program; Growing Up ready, to help the youngsters and their parents to prepare for an independent life. The intention is to help children with disability, at an early age, to be prepared to take responsibility for themselves at their level. It consists of a schedule and three age-appropriate checklists where the child chooses areas to work with. The main goal is participation in all areas in life, and it is an evidence-based framework. The program consists of 5 pamphlets; 1) About you, 2) At home, 3) At school, 4) Your community, and 5) Friendship and relations. The program will be illustrated with a case, and what practical advises that can be given. Similar examples can be given for other rare diagnosis, and our center, linked to Sunnaas Rehabilitation Hospital, serves as an example how the health care system can take care of these persons in an effective and optimal way. The presentation will illustrate this model in different ways.

OP12

WEARABLE HEAD AND BACK POSTURE FEEDBACK SYSTEM FOR CHILDREN WITH CEREBRAL PALSY

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Cerebral palsy (CP) is a very disabling health condition in childhood. CP children exhibit postural control problems in daily life activities. *Objectives:* 1) To optimize functioning which is necessary for alternative communication in children with CP by therapy which improves postural control of head and trunk. 2) To develop a smart wearable device (SWD) capable of reconstructing shape of the body and the relative head position with wireless data transmission to a mobile device. 3) To develop software on mobile device, which processes and logs body positions gathered from SWD, provides real-time feedback to the child wearing it. *Methods:* Four children with dyskinetic and spastic form of CP, GMFCS level III-V, mean age 10.2 (SD 3.1) participated. Goal Attainment Scales (GAS) were

developed for each individual to measure postural control in sitting position. Scoring was from -2 to +2. They were specific, measurable, achievable, realistic and time related. Children were assessed before and after individualized rehabilitation program based on the use of Smart Wearable Device (SWD). We developed a SWD consisting of acceleration/magnetic sensor network that is integrated into a vest. It is capable to measure patients back posture and the relative position of head. SWD collects data in real time and wirelessly transmits results to a mobile device. The mobile device runs an application, which dynamically depicts shape of back and position of head on screen, providing a real time feedback to the patient wearing the SWD. Feedback signals are implemented as visual, audial or tactile (vibration). *Results:* Use of SWD improved postural control, which resulted in improvement of child's daily activities- using eye tracking equipment for alternative communication. Individual change over 3 months period showed that GAS scores were equal to or higher than zero for postural control. *Conclusions:* SWD is an ideal assistive aid for rehabilitation, it 1) provides real-time feedback, precise performance measurements, 2) allows task performance modifications, and 3) enables rehabilitation programs to be adjusted according to the monitored real time performance results of the individual. It can be used also for patients with muscular dystrophy, after stroke and traumatic brain injury.

OP13

CAN WE PREDICT THE RISK OF FALLS IN AMPUTEES?

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Introduction: Accidental falls are a considerable health problem. Approximately half of the individuals with a lower limb amputation experience at least one fall each year. Computerized dynamic posturography (CDP) is a measure that detects postural sway by measuring shifts in the center of gravity. It has previously been used to assess balance and fall risk in various populations, but it is unclear whether CDP can detect fall risk in amputees. The aim of this study was to evaluate static balance in fallers and non-fallers lower limb amputees. *Material and Methods:* We have enrolled 47 unilateral lower limb amputees, 25 transtibial and 22 transfemoral, attending to an outpatient rehabilitation medicine department. In order to assess fall status participants were asked about falls in the past 12 months. Timed Up and Go test (TUG) and the Activities-specific Balance Confidence scale (ABC) were applied. Postural stability was assessed by CDP using the Biodex Stability System. Overall Stability index (OA) scores were obtained from the mean scores of three trials at the platform most stable level. Other variables like age, gender, anthropometric measurements, years since amputation, cause of amputation, walking aids use and comorbidities were assessed. *Results:* The subjects who experienced at least one fall during the past year were 36.2%. No significant differences were observed between the faller and non-faller groups in terms of gender, anthropometric measurements, time since amputation, cause of amputation, comorbidities, use of walking aids and ABC score. The faller group was significantly older (59.4 vs. 48.6 years, $p < 0.01$) and had a higher TUG score (14.2 vs. 10.9 seconds, $p = 0.01$). In CDP the faller group showed a significantly higher OA score (3.49 vs. 2.56, $p = 0.01$). The OA score demonstrated a fair overall accuracy in detecting participants with a history of falls (Receiver Operating Characteristic Curve Analysis: AUC=0.70). *Conclusion:* Our findings suggest that CDP and TUG are useful instruments for detection of amputees with falls antecedents. Detection of high risk individuals would be valuable to establish preventive rehabilitation measures.

OP14

REHABILITATION MEDICINE AND ENDOCRINE DISEASE: THERAPEUTIC EXERCISE AMELIORATES TYPE 2 DIABETES BY IMPROVING IMMUNE RESPONSE

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Background: Type 2 Diabetes (T2DM) is a metabolic disorder associated with obesity and low grade inflammation. In this disease deregulated neuroendocrine, inflammatory and metabolic responses contribute to diabetic micro and macrovascular complications. Regular physical exercise is recognized as a non-pharmacological intervention able to protect against the development of T2DM. However, the mechanisms by which exercise training exerts its neuroendocrine and anti-inflammatory effects are not fully understood. **Aim:** The purpose of the present investigation was mainly to evaluate the effects of a regular program of swimming training in the “inflammatory and stress status” of an experimental model of T2DM. **Methods and Material:** Sixteen obese ZDF rats (8 weeks old, 228.40±4.05 g) were randomly assigned to one of two groups ($n=8$ each): an exercise-trained group and a sedentary one. In addition, 16 lean ZDF rats (8 weeks old, 199.00±3.50 g) were subjected to identical sedentary and exercise conditioning. Initially, rats swam 15 min/day (5 days/week) in a 36°C bath. The exercise protocol was gradually increased by 15 min/day until a swimming period of 1 h/day (1 week) was attained. Thereafter, rats swam 1 h/day, 3 day/week, for an additional period of 11 weeks. Rats were sacrificed 48 h after the last training period and the blood were collected. Circulating levels of glucose, glycosylated hemoglobin, total cholesterol, triglycerides, insulin, C-reactive protein (hsCRP), interleukin (IL)-6, tumor necrosis factor alpha (TNF- α) and nor-adrenaline (NA) were assessed before and after the 12-week swimming training. **Results:** In the ZDF (fa/fa) rats undergoing swimming exercise, all the metabolic abnormalities were totally or partially prevented ($p<0.001$), namely the hyperglycemic, hyperinsulinemic, and dyslipidemic pattern observed in their sedentary counterparts. Furthermore, a decrease in hsCRPs (12.7%), IL-6 and TNF- α levels (-19.2% and -12.7%, respectively), as well as trend to decreased NA (-2.2%) contents, were found in the diabetic rats under exercise. **Conclusion:** In an animal model of T2DM A 12-week thrice-weekly swimming training can protect against the development of T2DM by optimizing neuroendocrine stress responsivity and promoting an anti-inflammatory state. Therefore, regular exercise may be a particularly effective intervention in treating and/or preventing T2DM comorbidities characterized by deregulated neuroendocrine, inflammatory and metabolic pathways.

OP15

KNEE JOINT CONTACT FORCE IN SUBJECTS WITH KNEE OSTEOARTHRITIS - AN INVESTIGATION OF THE INFLUENCE OF KNEE ORTHOSIS

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Background: There is no doubt that the loads applied on the knee joint plays a significant role to increase the symptoms associated with knee osteoarthritis (OA). Various designs of knee valgus orthoses have been used to decrease the loads on knee joints. The aim of this study was to investigate the influence of a new design of knee orthosis on joint contact force and muscle force. **Method:** A group of subjects with knee OA (10) participated in this study. A motion analysis system with 7 high speed camera and a Kistler force plate were used to record the forces applied on the leg and the motions of the subjects during walking. OpenSIM software was used to determine the knee joint contact force during walking with and without the orthosis. **Results:** The peak of vertical components of knee joint contact force decreased significantly during walking with the orthosis. The orthosis did not influence the walking speed of the subjects. Use of the orthosis decreased extension moment of the knee joint and peaks of the forces produced by muscles surrounding the knee joint. **Discussion:** The use of knee orthosis decreased the joint contact force due to decrease in extension moment and muscular forces. It is recommended that the new orthosis can be used by subjects with knee OA.

OP16

ASSESSMENT OF LOW LEVEL LASER THERAPY IRRADIATION PARAMETERS ON INJURED SKELETAL RAT MUSCLE TREATMENT

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Introduction: Low-level laser therapy (LLLT) is both active research topic and an expanding clinical therapeutic technique. In addition to the need for more evidence on therapy results and adequate dose and beam parameters, it is still necessary to clarify the cellular mechanisms mediated by LLLT. **Materials and Methods:** We used 85 Wistar male adult rats, randomized in one control ($n=10$) and 15 treatment groups. Inflammation was induced by mechanical trauma in the gastrocnemius muscle. We used continuous (830 and 980 nm) and pulsed illuminations (830 nm). Animals were divided into five groups per wavelength (10, 20, 30, 40 and 50 mW) and a control group. LLLT was applied during 5 days with a constant irradiation time and area. TNF- α , IL-1 β , IL-2 and IL-6 cytokines were quantified by ELISA. Inflammatory cells were counted using microscopy. Identical methodology was used with pulsed illumination. Average power (40 mW) and duty cycle were kept constant (80%) at five frequencies (5, 25, 50, 100 and 200 Hz). **Results:** Our results show treatment effects, particularly for irradiation with the 830 nm laser. At day 6, the concentration of all measured pro-inflammatory cytokines in the 30 and 40 mW groups were significantly lower than for the control group. IL-6 concentration was reduced for all treatment groups and TNF- α for all but the 50 mW group. The number of inflammatory cells in muscle tissue samples was also significantly lower in all treatment groups when compared to the control animals. The best results were obtained with a radiant power of 40 mW at 830 nm. This was the only group of animals where the concentration of all measured cytokines was already significantly lower at day 3 when compared to the control group. The lowest counts of inflammatory cells were also obtained in the 40 mW group. **Discussion:** Continuous irradiation at 830 nm was more effective, a result explained by the action spectrum of cytochrome c oxidase (CCO). Best results were obtained for 40 mW, with data suggesting a biphasic dose response. Pulsed wave irradiation was

only effective for higher frequencies, a result that might be related to the rate constants of the CCO internal electron transfer process.

OP17

EFFICIENCY OF PHYSIOTHERAPY USING GAIT TRAINER - EVALUATION FIVE MONTH AFTER REHABILITATION

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Loss of walking function and great changes in gait parameters determine settled lifestyle of people after stroke. The aim of this investigation was to evaluate effectiveness of physiotherapy using gait trainer. A total of 66 stroke subjects who underwent a rehabilitation program at Vilnius University Hospital Santariškių klinikos, Rehabilitation, Physical and Sports Medicine Centre in 2011–2014 were recruited for this study. Subjects were randomly assigned to an experimental or control group. All patients received 2 conventional physiotherapy procedures per day. The subjects in the experimental group also received about 20 minutes gait training with gait trainer additionally and patients in the control group also received additional about 20 minutes gait training with walker. Measurements were made at the beginning of the study and after 4 weeks. Five months after the end of the physiotherapy period 28 patients were retested: 11 patients from the control group and 17 patients from the experimental group. The results of Berg Balance scale, walking distance and Barthel index were significantly higher in the experimental group 5 months after the end of the physiotherapy phase compared with the control group. The Berg Balance scale results were more than 10 points higher, patients could walk 3 times longer distance and Barthel index was more than 20 points higher in the experimental group compared with the control group. The results improved with statistical significance in the experimental group 5 months after the physiotherapy period and the experimental group were still better than the control group. The effectiveness of the physiotherapy procedure using gait trainer remained better in the experimental group even 5 months after end of the training intervention than in the control group which had a physiotherapy procedure using traditional compensatory measures.

OP18

IS PAIN ACCEPTANCE A GOOD INDICATOR FOR DIFFERENTIAL RESPONSE TO VARIOUS REHABILITATION PACKAGES?

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Behavioral medicine is considered as the state of the art in the area of chronic pain rehabilitation. Rehabilitation packages based on Acceptance and Commitment Therapy (ACT) and Cognitive Behavioral Therapy (CBT) are known as having strong evidence of their effectiveness. What is not known is which patient that benefits of what kind of rehabilitation package. One way to explore the differential response to rehabilitation is to stratify and group patients according to their behaviors in order to identify common rehabilitation needs. How patients relate to and accept their pain can potentially be such a useful and pragmatic indicator, according to

prior studies. *Aim:* To explore the usefulness of clustering patients according to their pain acceptance in order to identify the patients' differential response to ACT and CBT. *Method:* 272 patient with widespread pain underwent ACT and 119 with neck pain underwent CBT and completed the self-reported questionnaires about quality of life and function (SF-36, EQ-5D) and pain acceptance (CPAQ) included in the Swedish Quality Registry for Pain Rehabilitation. The total group generated four pain acceptance-clusters: one cluster with high levels, the other low and two cluster with uneven scores were compared with T-test and mixed between-within-subjects ANOVAs. *Results:* Even though the ACT and CBT groups were heterogeneous regarding their functional level and quality of life, both groups improved during rehabilitation, but only the ACT group improved in physical function. Each pain acceptance cluster showed a different bio-psychosocial profile and also different patterns of response. The most interesting finding was for the cluster of patient with widespread pain that was feeling worst and got ACT. These groups of patients are the most difficult to treat, however they were the ones that benefitted the most. Overall, the clusters that underwent CBT decreased their kinesophobia, but only the clusters that underwent ACT showed an increase in physical functioning. *Conclusion:* This study provides further support of the usefulness of clustering patients according to their pain acceptance and that ACT pragmatically increases physical function even in the presence of fear of movement.

OP19

EFFICACY OF TRAMADOL/PARACETAMOL 75 MG/650 MG/DAY AND IBUPROFENUM 1,200 MG/DAY IN REDUCTION OF PAIN AND DISABILITY IN PATIENTS WITH CHRONIC LOW BACK PAIN: RESULTS OF A 3-WEEK, MULTICENTER, RANDOMIZED, DOUBLE-BLIND STUDY

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Background and Methods: The efficacy and safety of tramadol/paracetamol 75 mg/650 mg/day in patients with established chronic low back pain (CLBP) were compared with those of ibuprofenum 1200 mg/day in a 3week, multicentre, randomized, double-blind, parallel-group trial. One hundred and forty-six adult patients with CLBP (Quebec Task Force on Spinal Disorders Class 1 or 2) and with worsening pain upon discontinuation of pre-study analgesic medication were enrolled in the study. The study primary efficacy endpoint was change from baseline in Low Back Pain Intensity Scale (LBPIS) score over the 3week treatment period. Secondary and other efficacy endpoints included: changes in Roland and Morris Disability Questionnaire (RMDQ), Patient Global Assessment of Response to Therapy (PGART) and Low Back Pain Bothersomeness Scale (LBP-BS) scores. Early efficacy was assessed using PGART and LBPIS scores 4 h after the first dose in the morning of days 1, 2 and 3. The overall safety and tolerability of tramadol/paracetamol 75 mg/650 mg/day during 3 weeks of treatment were also assessed. *Results:* The least-squares mean time-weighted change from baseline LBPIS score over 3 weeks was -32.94 mm (95% CI $-36.25, -29.63$) for tramadol/paracetamol 75 mg/650 mg/day, indicating substantial efficacy in relief of pain. The treatment difference for the primary outcome was 2.51 mm (95% CI $-1.50, 6.51$), fulfilling the prespecified equivalence criterion of 95% confidence interval wholly within ± 10 mm. Tramadol/paracetamol 75 mg/650 mg/day improved all secondary and other efficacy outcomes. There were no statistically significant between-group differences in the proportion of patients with one or more clinical adverse events (AEs) (tramadol/paracetamol 35%, ibuprofenum 39%), or the proportion of patients who discontinued due to AEs (tramadol/paracetamol

7%, ibuprofenum 5%). *Conclusions:* The results of this study confirm that, for adult patients with CLBP, tramadol/paracetamol 75 mg/650 mg daily over 3 weeks is effective for relief of pain and improvement of physical function and comparable to high-dose ibuprofenum 1,200 mg daily.

Keywords: controlled clinical trial, ibuprofenum, tramadol, paracetamol, low back pain.

OP20

MANAGEMENT OF THE PROCESS OF REHABILITATION IN CHILDREN WITH IDIOPATHIC SCOLIOSIS OF II DEGREE

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At present, treatment of the children with idiopathic scoliosis remains the topical problem. There is controversy over the treatment tactics, as in the American and European medicine the role of muscles is neglected, and the primary methods of rehabilitation are bracing and surgery. The study aimed to determine the effectiveness of the optimal subsequence of rehabilitation methods in the complex treatment of II degree idiopathic scoliosis. The study included 24 patients, female, aged 12–15 years, with a diagnosis of thoracolumbar idiopathic scoliosis, II degree, with an angle of curvature of 23–27°. The objective of rehabilitation was elimination of the asymmetric strain (relaxation) of extensor muscles of the back, traction, detorsion (rotation) and fixation of the spine with a strong muscular corset around it. The participants underwent a complex rehabilitation using amplipulse therapy, manual therapy, kinesiotherapy and hippotherapy using a method suggested by D. Tsverava (1985). The main subjective, objective and radiological parameters were studied in dynamics, before and 3 months after treatment; the functional state of the spinal, back and abdominal muscles was investigated using a static muscle endurance test that was conducted before treatment and at one and three months of rehabilitation. Analysis of the results shows that all of the proposed rehabilitation scheme and subsequence of methods are highly effective for the children with II degree of idiopathic scoliosis. This was demonstrated by improvement of all parameters: discomfort and feeling of fatigue in the back, pain on exertion, pain in trigger points were eliminated; there was a trend of aligning asymmetry between the orientation points; static endurance of trunk and abdominal muscles, angle of curvature decreased (average 5–60). *Conclusion:* Complex rehabilitation using physical methods such as amplipulse therapy, manual therapy and kinesiotherapy may be effective for II degree of thoracolumbar idiopathic scoliosis. Hippotherapy enables significant strengthening of the muscles supporting the spine, and besides, creates a favorable environment due to contact of children with a horse.

Keywords: hippotherapy, idiopathic scoliosis, scoliosis rehabilitation, manual therapy, kinesiotherapy, amplipulse therapy.

OP21

THE EFFECT OF 2ND DEGREE ADOLESCENT IDIOPATHIC SCOLIOSIS ON THE STATIC POSTURAL STABILITY IN THE FRONTAL AND SAGITTAL PLANE

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Introduction: Adolescent idiopathic scoliosis (AIS) is a three-dimensional spine deformity which causes axial disorders of the trunk, which in turn may influence the stability of the body. The

aim of this study is to assess postural stability and control in a homogenous group of 2nd degree (20–40°) scoliotic patients. *Material:* The study group comprised 36 patients aged 13–15 (13.5 on average), with diagnosed 2nd degree idiopathic scoliosis qualified for bracing and Cobb angle 25°–45° (32° on average). The control group consisted of 42 healthy subjects aged 13–14 (13.6 on average). *Methods:* A two-plate CQW2P-vUSB posturography system was used. It consisted of two platforms with sensors. The patients were tested with no shoes on, in the standing position, looking ahead, eyes focused on one point. The test comprised two stages. The first stage (eyes open) consisted in stepping onto the platform, adapting to the tested position for 15 seconds, taking the main test for 30 seconds, and leaving the platform to stand on a predetermined rectangle. The second stage (eyes closed from the moment of setting feet on both platforms) consisted in repeating all the above activities. The statistical analysis (a non-parametric Mann-Whitney U test) involved the parameters of mean excursion and the centre of pressure (COP) mean velocity in the sagittal plane and the frontal plane for both groups. *Results:* The statistical analysis showed that for both parameters in the sagittal and frontal plane there is a statistically significant difference between the study group and the control group. The parameters of postural stability worsened in the study group, which means that 2nd degree AIS has effect on the static stability. *Discussion:* The postural stability is described by a lot of statistical parameters whose analysis exceeds the scope of this study. The two chosen parameters describe significant features related to the lack of control of the COP in scoliotic patients. The above results may have practical applications, as the kinesiotherapeutic programmes should be enriched with exercises enhancing balance and proprioception. *Conclusion:* II degree AIS results in poorer postural stability in the sagittal and frontal plane.

OP22

PERINATAL BRACHIAL PLEXUS INJURY AND PROGNOSTIC FACTORS

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Objective: Brachial plexus injury in newborns is a disorder characterized by motor and sensory changes of the upper limb, as a result of perinatal complications, mostly during de second stage of labour. Various risk factors are known, including fetal macrosomia, maternal diabetes, advanced maternal age or instrumented birth. The objective of this study was to characterize the cases of perinatal brachial plexus palsy (PBPP) followed in a rehabilitation outpatient department and to assess the factors associated with a worse outcome. *Methods:* Case review of medical records of children with diagnosis of PBPP in an outpatient paediatric rehabilitation department. Data on demographic characteristics, risk factors, clinical assessment, treatment and follow-up at one and two years were collected. *Results:* A total of 126 children were observed in a rehabilitation consultation, in 12 of which the diagnosis of PBPP was not confirmed. There was a slight predominance of male children. Delivery was eutocic in 45.7% and by caesarean section in 4.1% of cases. As related complications 23.7% of children had clavicle fracture and 0.9% had humeral fracture. PBPP affected slightly more the right upper limb than the left and was bilateral in 0.9%. Most of the injuries were the Duchenne-Erb type. Regarding the outcome, 50.9% at one year and 40.4% at two years presented with decreased strength or decreased range of motion of the affected arm, although functional status was not assessed. The factors significantly associated with a worse outcome at two years of age were the female gender, the absence of clavicle fracture and macrosomia. The lack of function of the brachial biceps muscle at three months was significantly associated with a poor outcome. *Conclusions:* The results are in agreement with the literature reviewed. However, it should be noted the unusual percentage of births by caesarean section and the fact that clavicle fracture was associated with better prognosis.

Keywords: brachial plexus neuropathy, obstetric paralysis, rehabilitation.

OP23

WHAT DO YOUNG ADULTS WITH NEUROLOGICAL CONDITIONS MOVING INTO ADULTHOOD WANT FROM LEEDS COMMUNITY NEUROLOGICAL REHABILITATION SERVICE? ARE WE MEETING THEIR NEEDS?

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Background: In Leeds (UK) there has been a service dedicated to young adults with neurological conditions since 1988, which has proven to produce improved medical and social outcomes. The introduction of the Children and Families Act in 2014 has brought fresh attention to the issues surrounding transition, with an emphasis on a more joined-up working between services. Transition is widely considered a crucial time, and with demands to support young adults with more and more complex needs, in a time of ever increasing budget cuts, there is a real challenge to providing effective services. *Aim:* With the spotlight once again on transition, this study looks at how effectively the community neurological rehabilitation service (CNRS) in Leeds is meeting the needs of today's young adults in transition. *Method:* We are conducting semi-structured interviews with six young adults with neurological conditions and six parents. The interviews cover their experiences of transition, the impact of having a neurological condition as a young adult and their thoughts on how the service could better meet their needs. We are interviewing young adults at different stages of transition, including those just starting to access adult services and those who have received support from the CNRS for several years. *Results:* We have so far conducted 60% of the interviews and early findings show that experiences of transition are very varied. Whilst some participants feel supported by the CNRS and really value the care they have received, other participants have felt abandoned on leaving child services. Young adults have reported finding it difficult to adapt to a more patient-led model of care where there is more responsibility on them to identify their needs, and have also highlighted a need for clinicians to address sexual function as part of the service they provide. *Discussion:* We will complete the study by July 2015, which will highlight where the CNRS is working well and where improvements can be made. The findings will also provide valuable information for other services, which support young adults during transition, to ensure that they are fit for purpose, now and in the future.

OP24

SUNNAAS INTERNATIONAL NETWORK (SIN) STROKE STUDY, DISABILITY AFTER STROKE IN PATIENTS ADMITTED TO SPECIALIZED REHABILITATION IN NINE INSTITUTIONS/ SEVEN COUNTRIES – AN EXPLORATIVE STUDY

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Background: Stroke is the leading cause of serious and long-term disability. A major stroke has severe consequences for the individual on both physical and psychological health. *Purpose of the study:* An explorative study of disability after stroke measured by National Institutes of Health Stroke Scale (NIHSS) and modified Rankin Scale (mRS), in specialized rehabilitation at nine different institutions in seven countries. Collaborating partners: Nine rehabilitation institutions; Sunnaas Rehabilitation Hospital, Norway; China Rehabilitation Research Center and Sichuan 81 Rehabilitation Center, China; Rusk Institute of Rehabilitation, USA; Policlinica 2, Russia; Sheba Medical Center, Israel; Bethlehem Arab Society Rehabilitation (BASR), Palestine; El Wafa, Gaza; Sahlgrenska University Högskolan Hospital, Sweden. *Method and Outcome Measures:* Patients with a primary diagnosis of stroke as defined by the World Health Organization were consecutively enrolled in the study on admission to the specialized rehabilitation clinic. Outcome measures were NIHSS, to measure degree of disability, and mRS, for evaluating severity of stroke. NIHSS was evaluated on admission and at discharge from the clinics. *Results:* Modified Rankin Scale (mRS) on admission varied between 3.3 and 4.4, indicating moderate to severe disability. NIHSS total score on the other hand varied on admission between 4.4 and 11.7, indicating mild to moderate severe stroke. The NIHSS total scores on discharge varied from 1.5 to 6.3, indicating a clear improvement to milder stroke. NIHSS change scores in total were significantly different ($p < 0.001$) between participating countries from admission to discharge. Policlinica 2 and Sichuan Bayi reported change scores between 5.4 to 4.2 from admission till discharge, followed by BASR and Sunnaas with 3.2 to 3.1, respectively. Time between debut to admission, length of stay and type of therapy services varied between participating clinics. *Discussion:* The scores of NIHSS and mRS are meant to evaluate the disability and severity of stroke and should be mutually comparable. However, our results indicate a discrepancy between the two when used in different clinics on a regular basis. Change scores differed significantly between institutions, possibly indicating that the rehabilitation models implemented in some of the clinics were favorable for overall ability. However, these results warrant further studies.

OP25

NORMALITY AS CULTURAL CHALLENGE IN BRAIN INJURY REHABILITATION

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The aim of this study was to explore how the society's cultural concepts of normality affect individuals with brain injury. The sample consisted of ten men and six women, aged 22 to 58 years. Ethnographic methods were used. These consisted of participant observation together with patients in a rehabilitation clinic that offered in-patient courses for people with mild to moderate acquired brain injury. The researcher attended rehabilitation courses along with patients for a period of four months. She participated in all common activities in the clinic. Field notes were taken throughout the participation. Each of study participants also attended individual interviews, recorded on audio files. All data were transformed to text and analyzed through ethnographic approaches. The texts were read through several times. An adductive approach enabled a back-and-forth movement between the text's different topics, meanings, significance, and current literature, to make interpretations and produce knowledge. Most of the study participants avoided disclosing their brain injury to others, which demanded an analysis of the meaning of normality in peoples' lives. The ordering of normality has historically been crucial for the development of modern medicine and treatment. Along with this there has been less cultural ac-

ceptance for what is not classified as normal. This influences brain injured children as well as adults in their possibility to participate in society. Other disabled have adopted contrary discourses where they celebrate their own otherness. Such strategies seem not to be possible when it comes to the brain, since there are few positive signs of brain injury to associate to. Instead brain injuries threaten to exclude individuals from the experience of common humanity. Normality is a prerequisite for opportunities to find the pathological and provide proper treatment and customized care. Hence it is neither possible nor desirable to try to reverse cultural categories that promote normality. It is, however, possible to consider the pathological and the normal as elements in a mutual process of health. Such a consideration will highlight the health professionals' challenges when it comes to demystification, openness and acceptance of those in society who are different than the norm.

OP26

HOME REHABILITATION AFTER SEVERE ISCHEMIC STROKE. A CASE STUDY OF INDIVIDUAL PHYSIOTHERAPEUTIC INPUT

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Introduction: Approximately 500,000 people have a stroke each year in Russian Federation¹. The current situation is characterized by vanishing of rehabilitative efforts after patients' discharge in the community because of the non-existent continuity of our rehabilitation system². *Aim:* To demonstrate the results of a continuous home rehabilitation program after stroke. *Materials and methods:* A male patient (56 years old) was discharged in May 2013 after ischemic stroke resulted from occlusion of the left internal carotid artery. He had right side paralysis and expressive aphasia. Home physical therapy sessions (90 minutes three times a week for 9 months) accompanied by an individual home exercise program (HEP) were started in September 2013. Functional electric stimulation (FES) of the paralyzed upper extremity muscles was also provided³. *Results:* 3rd month – walking to the right with a quad cane, 4th month – backward-walking and walking to the left with a quad cane, 5th month – walking forward, 6th month – walking up the stairs, 8th month – walking on the street with quad cane, 9th month – stepper walking in order to improve cardio-respiratory fitness. After 9 months of training the patient has changed his Barthel index score from 35 to 95 points. *Conclusions:* A prolonged home rehabilitation program can be effective even in case of severe stroke accompanied by significant functional deficit.

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OP27

BIOPSYCHOSOCIAL FACTORS PREDICTED THE FUNCTIONING IN DAILY LIFE, SOCIAL ACTIVITIES AND OCCUPATIONS AMONG PERSON WITH SCI

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Introduction: Spinal cord injuries cause enormous changes in biopsychosocial life: physical, psychological and social. The functioning in daily life has an effect on quality of life of persons with SCI, their families and community. Evaluation of prevalence of functioning problems in a period of inpatient SCI rehabilitation programs, after discharge and in a long-term context have a significant ability to predict the successful functioning in daily and social life. The aim of this cross-sectional study was to assess the predictive functioning value in assessment of biopsychosocial variables. *Methods:* 194 persons with SCI participated in the study performed during 2012–2015 years inpatient SCI rehabilitation programs in the Rehabilitation, Physical and Sports Medicine Center, Vilnius University hospital. Persons with SCI in a long-term context (from 1 to 24 years after SCI) were involved in cooperation with Lithuanian Paraplegics Association. *Instruments:* ICF Core Set for Spinal Cord Injury for the post-acute context and the long-term context, and the FIM test. Ethical approval has been obtained from the Lithuanian Bioethics Committee (Protocol No. 1.17/3/2011). *Results:* The main functional problems: Emotional functions (22.3%), Self-confidence (24.1%), Sensory – especially Sensation of stabbing, aching pain localized in neck, back, in a dermatome (68.9%), Mobility and movement organs functions: Muscle power (89.7%), Muscle tone (56.7%), Muscle endurance (58.1%), Sensations of the skin (78.6%). Activities and participation: Changing and maintaining a body position (42.7%), Transferring oneself (38.9%), Lifting and carrying objects (47.2%), Fine hand use (39.6%), Moving around (24.5%) in different locations (49.1%). Self-care limitations significantly frequent during inpatient SCI rehabilitation period and 1–2 years after discharge. 22 (11.17%) participants were employed, 36 (18.55%) have short-term works, 48 (24.74%) home works, 88 (45.36%) not working. Employed participants FIM score was higher 114.4±7.7 ($p<0.05$) compared with unemployed 94.4±16.4 ($p<0.05$). *Conclusion:* The prevalence of many functional problems and independence level depends on the time since SCI onset, the level of SCI, the presence of pain, physical endurance, muscle strength and muscle tone function. Activities in daily and social life were influenced by motivation, Basic life skill and Environmental factors.

OP28

BODY WEIGHT SUPPORTED TREADMILL TRAINING VERSUS TRADITIONAL TRAINING IN PATIENTS DEPENDENT ON WALKING ASSISTANCE AFTER STROKE: A RANDOMIZED CONTROLLED TRIAL

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Background: Restoring walking ability is an important goal within rehabilitation after stroke. Efforts have therefore been invested in achieving evidence for effective ways of restoring motor functions. Development of neurotechnology aimed to support motor training, is increasing and may provide possibility to train high-intensive, repetitive and task specific in accordance with recommended principles to promote motor recovery. *Purpose:* Treadmill training with body weight support (TTBWS) for relearning walking ability after brain damage is one of more technological approaches under current investigation. This method has recently been demonstrated effective regarding walking speed and walking endurance for patients being able to walk independently after stroke. However, TTBWS is still lacking evidence to be effective beyond traditional training in patients dependent of walking assistance. The objective of this

study was to investigate change in walking and transfer abilities, comparing TTBWS with traditional walking training in patients needing walking assistance after stroke. *Method:* A single blinded, randomized controlled trial was conducted. Sixty patients referred for multidisciplinary primary rehabilitation were assigned into one of two intervention groups, one received 30 sessions of TTBWS plus traditional training, the other traditional training alone. Daily training was one hour and the training period lasted for 11 weeks. Outcome measures were Functional Ambulation Categories (FAC), EU Walking Index, Functional Independence Measure (FIM); shorter transfer and stairs, 10 m and 6-minute walk tests. Assessment of walking ability was conducted in a silent test corridor, with a 30 m walkway. Transfer was tested by using a regular plinth and a stair nearby for stair climbing. *Results:* Substantial improvements in walking and transfer were shown within both groups after 5 and 11 weeks of intervention. Overall, no statistical significant differences were found between the groups, but 12 of 17 outcome measures tended to show improvements in favour of the treadmill approach. *Conclusion:* Both training strategies provided significant before-after improvements in the tested activities, suggesting that similar outcomes can be obtained with both modalities by systematic, intensive and goal directed training. The choice between the two training strategies in clinical practice can be based on the patients' preference, availability of equipment and resources.

OP29

PREVENTION OF ADOLESCENT IDIOPATHIC SCOLIOSIS (AIS): DREAM OR REALTY?

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Introduction and Aim: This lecture is dealing with the prevention of AIS as a disease rather than preventing its progression. The time period when the young persons show the first symptoms of scoliosis is preceded by an important, so-called "dark period", during which there is a transition of a healthy spinal column to a scoliotic one.

Results and Discussion: Different possible mechanisms will be presented and discussed. A two-column pillar model can be applied in which one column has the ability to increase its longitudinal size. A second key fact in understanding the initiation of AIS, as they specified the reasons for the differences in the longitudinal sizes of the spinal cord and its bone-ligament-muscle "sheath" is the finding that patients with AIS held four typical options of osteotropic hormonal profile, in full compliance with which the scoliotic deformations had a 'progressive' scoliosis, 'slow-progressive' or 'non-progressive nature'. In particular, when a high level of growth hormone (GH) and calcitonin (Ct), indicating active bone formation, was found, the 'progressive' option was typical, while 'non-progressive' showed itself at a high concentration of its functional antagonists (cortisol and parathyrin, Csl and Pth). The third fact in understanding the process of transition of a healthy spinal column to the "scoliotic" one was the result of observation of a group of healthy children (500 boys and girls aged 8 to 12 years) for 4 years. For objectification of the data the method of EMG and computer optical topography (COT) were used. The first symptom in the child, which in 1-3 years will develop 3D deformation, turned out to be the physiological changes in the degree of thoracic kyphosis. During the examination, their doctor sees complex "flat back" which is successfully documented using COT. The second in a series of such symptoms in the child (intensive longitudinal growth of "sheath") is the development of trunk torsion. It is difficult to identify during a doctor's exam, but can be registered with the COT. This torsion is manifested in violation of parallelism of frontal curves of shoulder and pelvic girdles in the horizontal plane, our data do not exceed 10°. The results of EMG show the fact that it has quite a physical basis: in the lumbar and lower-thoracic areas there is a steady asymmetry of bioelectric activity of paravertebral muscles. Among them, in accordance with the anatomy of this part, the main role is played by lumbar mm. multifidi, a retraction of which turns caudal vertebrae in the contralateral side. One of the conclusions is that there are at least two "targets", which may be used as leverages to influence the interruption of the transition of a healthy spine into the "scoliotic" one. These are the orthotropic hormonal profile and asymmetrically increased electrical activity of the paravertebral muscles.

POST-CONFERENCE WORKSHOP

OP 30

EVIDENCE-BASED PHYSICAL AND REHABILITATION MEDICINE: CONSERVATIVE APPROACH TO ADOLESCENTS WITH IDIOPATHIC SCOLIOSIS

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Physical and Rehabilitation Medicine (PRM) plays a primary role in treating adolescents with idiopathic scoliosis (AIS): all therapies (exercises, braces) fall into PRM domain. According to a Cochrane systematic review there is evidence in favor of bracing. Three meta-analyses have been published: one shows that bracing does not

reduce surgery rates, but studies with bracing plus exercises were not included and had the highest effectiveness; another shows that full time is better than part-time bracing; the last focuses on observational studies following the SRS criteria and shows that not all full time rigid bracing are the same: some have the highest effectiveness, others have less than elastic and nighttime bracing. Two very important RCTs failed in recruitment, showing that in the field of bracing for scoliosis RCTs are not accepted by the patients. Consensus by the international Society on Scoliosis Orthopedic and Rehabilitation Treatment (SOSORT) show that there is no agreement among experts either on the best braces or on their biomechanical action, and that compliance is a matter of clinical more than patients' behavior. Research on AIS conservative treatment continuously decreased since the 80ies, but this trend changed recently. The SOSORT Guidelines offers the actual standard of conservative care.

POSTER ABSTRACTS

A. IMMUNOLOGY AND POST-POLIO REHABILITATION

PP1

NO ELEVATED LEVELS OF IMMUNE COMPLEXES IN SERUM OF POSTPOLIO PATIENTS

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Aim: The pathophysiology of the postpolio syndrome is not fully understood. Increased cytokine levels in cerebrospinal fluid and peripheral blood indicate a systemic inflammatory process. A decrease in cytokine levels and a clinical effect of intravenous immunoglobulin treatment further argues for an inflammatory/immunological pathogenesis of PPS. One plausible explanation for the inflammatory process in PPS could be an autoimmune process initiated by the polio infection. Immune complexes containing antibodies and their corresponding antigens are produced during normal immune responses as means of eliminating foreign substances, e.g. during infections. The aim of the present study was to evaluate whether an autoimmune process follows the initial infection, by means of analyzing immune complexes. **Patients and Methods:** Circulating immune complexes were analysed from blood samples of 20 postpolio patients and 95 healthy controls. To compensate for differences in age between patients and controls, a sub-analysis was performed using only the 30 oldest controls. **Results:** When comparing levels in postpolio patients to the whole control group, including the 30 oldest investigated, there were no statistically significant differences. No difference was found in tumor necrosis factor levels induced by immune complexes when comparing patients and controls. **Conclusions:** There was no increase in circulating immune complex or in tumour necrosis factor-inducing effects of circulating immune complex between postpolio patients and healthy controls, indicating, but not excluding, that the postpolio syndrome is not due to an autoimmune reaction. However, other autoimmune mechanisms may still be involved.

PP2

A LONG-TIME FOLLOW-UP IN PRIOR POLIO PATIENTS – WHAT HAPPENED IN 17 YEARS?

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Objective: A follow-up of state of health in prior polio patients during a 17-year period. **Design:** A follow-up study. **Patients:** Prior polio patients. **Methods:** The study questionnaire was answered by 270 patients in 1995. In 2012 the questionnaire was sent again to the patients still alive. **Results:** 116 (40%) of the patients answering the questionnaire in 1995 were still alive in 2012. The group of patients who had died was older and had a mean age of 70 years 1995 and perceived more severe disability due to poliomyelitis. A total of 60 patients participated in the study by answering the questionnaire in 1995 and 2012. A vast majority, (84%) reported that they felt progressively worse with poor mobility and increased muscle weakness 2012 compared to 1995 and more than half reported lower quality of life 2012. The number of patients using wheel-chair had increased significantly. Furthermore, the patients experienced increasing problems with ADL function. **Conclusion:** More than

half of the patients with prior polio, with older age and more severe disability, had died between 1995 and 2012. When interviewed 2012 the patients felt progressively worse with poor mobility, increased muscle weakness and lower quality of life.

B. HABILITATION OF CHILDREN

PP3

PSYCHOMOTOR DEVELOPMENT DURING THE FIRST THREE YEARS OF LIFE IN PERINATALLY HIV-INFECTED CHILDREN LIVING IN A LONG-TERM SOCIAL CARE INSTITUTION

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Background: The influence of HIV on development has been well documented. Both HIV infection and institutional care are related to delays in physical and cognitive development in perinatally HIV-infected children. Systematic longitudinal monitoring of developmental growth is a necessary component of comprehensive medical care for children with HIV disease. **Aim:** To analyse psychomotor development and measures of immunological status during the first three years of life in perinatally HIV-infected children living in long-term social care institution. **Methods:** Data from medical records of 13 perinatally HIV-infected children – clients of a social care institution in the period 2009–2014 were collected and analysed. Altogether, results of 84 evaluations by Munich functional developmental diagnostics (MFDD) (Hellbrügge, 1999) were used to analyse psychomotor development of these children in relation with immunological status described by traditional markers of HIV disease progression and severity including plasma viral load (HIV-RNA), CD4 cell counts. The measures of growth (height and weight) were included in the analysis as well. **Results and Conclusions:** The participants, perinatally HIV-infected children, received specific ART and showed very individual developmental profiles according to MFDD during the first three years of life. Altogether, in 65 out of 84 analysed evaluations (77%) carried out in participants by MFDD, developmental delay was stated at least in one of the categories. HIV-infected children with the lowest weight-for-height scores and with the most advanced disease measures during time of assessment more often demonstrated severe psychomotor developmental delay. **Keywords:** children, early psychomotor development, HIV, measures of immune function, social care institution.

PP4

ACCESSIBILITY AND REQUIREMENTS FOR ASSISTIVE DEVICES IN CHILDREN WITH SPINA BIFIDA IN LATVIA

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Introduction: Spina bifida is a congenital malformation of neural tube that affects development and functioning of a child. The mul-

tiple body systems affected by this congenital pathology makes intervention for these patients more complex. A wide variety of adaptive equipment typically is required for individuals with spina bifida. Goal: To detect patient needs for assistive devices and to analyze accessibility of assistive aids in children with spina bifida in Latvia. *Materials and Methods:* Fifty-two patients were included in this study. Data for a retrospective study was collected from the archive of Children's Clinical University Hospital and Vaivari Assistive Technology Centre. Use of assistive devices by patients and their caregivers was evaluated by means of a telephone survey. *Results:* Most of the patients received technical equipment from the government. Some individuals required additional financial support and special aid from other foundations or charitable organizations. *Conclusions:* The need for equipment varies with the level of lesion and age, therefore specialists should consider the most appropriate type of equipment for the given situation. Patients and their caregivers are not fully satisfied with assistive devices. As far as requirement for specific aids is higher than accessibility, the government should reconsider more carefully the ways of providing individuals with assistive devices.

PP5

REHABILITATION OF CHILDREN WITH HYPERTENSION: CARDIOVASCULAR RISK ASSESSMENT

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Cardiovascular risk assessment in children has become critically important in pediatric preventative medicine as prevention of adult cardiovascular diseases (CVD) should begin in childhood. We have analyzed CVD factors in a group of children with primary hypertension and compared the results with data obtained from normotensive children. The aim of the study is to determine a complex of individual CVD risk factors of hypertensive patients and to optimize cardiovascular risk reduction. A clinical examination was performed in 58 children, mean age 13.52 ± 2.35 years. 38 subjects with hypertension and a control group of normotensives were included in the study. Hypertension was defined according to recommendations. For all subjects, data on blood pressure (BP), cardiovascular risk profile and a complete anamnesis (birth anamnesis, family anamnesis of CVD, medical anamnesis) were determined. All children had an aggravating family anamnesis in terms of CVD including arterial hypertension, this factor being the same for both groups. In the subgroup of patients with hypertension 32% of the children were obese, 3% had excessive body weight and 13% were underweight. The mean values of body mass index (BMI) were 21.76 ± 3.78 kg/m² and for waist circumference 72.08 ± 9.00 cm. Most obese children had abdominal type of obesity. 71% of the children in this subgroup had an aggravating factor of obesity in their anamneses. In assessing the relationship between these factors a correlation was found between the level of systolic blood pressure and body mass index ($r=0.47$, $p<0.05$) and waist circumference ($r=0.55$, $p<0.05$). 13% of patients with hypertension had low birth weight and / or were prematurely born (5% of normotensives, $p<0.15$). Low birth weight correlated with waist circumference ($r=-0.36$, $p<0.05$). No such relation was found in the control group. The incidence of active and passive smoking, emotional stress, social factors were not different between the groups. Identification of individual CVD risk factors in patients with hypertension is an important component while forming an individual rehabilitation program and choosing modes of rehabilitation including cardiovascular risk factors modification (for instance education about CVD risk factors, controlling blood pressure).

PP6

PEDIATRIC STROKE AND POST-SURGERY REHABILITATION IN PRUNE BELLY SYNDROME – A RARE CASE REPORT

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Introduction: Stroke is relatively rare in the pediatric age and cardiac disease is the most common cause. Prune belly syndrome is a rare congenital anomaly and only 3–4% of the cases occur in females. It is characterized by deficient development of the abdominal wall musculature (that causes the skin of the abdomen to wrinkle like a prune) and abnormalities of the urinary tract. Other associated anomalies such as cardiovascular, gastrointestinal or orthopedic disorders might be present and this disease heterogeneity requires individualized management. *Case Report:* A 14-year-old female with prune belly syndrome and sphincter incontinence, otherwise independent in the daily living activities, presented with an acute arterial ischemic stroke in January 2013, which resulted in right hemiplegia and aphasia. Due to an uterine bleeding during the hospital stay, a hysterectomy was performed and she was hospitalized for 2 months. She underwent a rehabilitation program that included physical therapy, occupational therapy and speech therapy with good evolution. At the present time she maintains a non-fluent aphasia that interfere moderately with communication, walks independently with a hemiplegic gait pattern, needs supervision in transfers and needs minimal to moderate assistance in other daily life activities. *Conclusion:* This case illustrates a rare disorder associated with a pediatric stroke and a major abdominal surgery. The rehabilitation program was determinant to improve the quality of life of this child.

PP7

BLOUNT DISEASE AND REHABILITATION

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Background: The Blount disease is a tibial varus deformity characteristic for children and adolescents without any additional disorders. The disease is directly caused by asymmetrical growth inhibition of the posteromedial portion of the proximal growth plate. The etiology of the Blount disease remains unknown although it is more common for obese children. The Blount disease is a rare one, accounting for less than one person per 2,000 in the European population. *Case presentation:* We report a 3-year-old girl with the Blount disease. With an integrated rehabilitation approach and appropriate bracing a visible correction of the knee angle of the child was achieved. The patient was treated by the rehabilitation team only and was supported by orthopaedic diagnostics. *Conclusion:* Rehabilitation of a child with the Blount disease should be early and comprehensive. Corrective treatment of the knee of children with the Blount disease should be preceded by an X-ray control, very early implementation of neurodevelopment techniques, HKAFO orthosis and supplementation of D3 vitamin. The experience of our team indicates that in this case early rehabilitation treatment prevented the patient from surgical intervention.

PP8

NEURO-ORTHOAEDIC PNEUMO-SUIT THERAPY IN CHILDREN WITH CEREBRAL PALSY: INFLUENCE ON GAIT AND MUSCLE TONE

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Cerebral palsy (CP) causes numerous impairments of neuromuscular and musculo-skeletal systems. Studies show that a more frequent motor impairment in CP children is spasticity, which is characterised by increase of velocity-dependent tonic reflex accompanied by higher than normal stretch-reflex due to upper motor neuron syndrome. Increased ratio of spastic diplegia in relation to quadriplegia and wide variations across studies in the proportion of diplegia and bilateral spastic CP were previously demonstrated. Physical therapists are using different kinds of modalities in medical rehabilitation of neurological patients with motor deficiency, including orthoses and garments. One such method is using of neuro-orthopaedic pneumosuit Atlant (NOPSA) (Dynaforce, Russia), which stabilizes the trunk and the extremities by dynamic proprioceptive stimulation, reduces pathological synergies and normalises motor activity. *Aim:* The present report includes data of the first study of the influence of a 3-month therapy using the NOPSA on gait and muscle tone characteristics in six CP children with spasticity of lower extremities (mean±SE age 5.2±0.8 years). *Methods:* Children had NOPS therapy sessions during three months, supervised by an experienced physiotherapy specialist. The kinematic and kinetic characteristics of gait were measured using 3-D movement analysis system Elite Clinic (BTS S.p.A., Italy). Muscle tone characteristics (frequency of natural muscle oscillation, Hz) of erector spinae (ES), rectus abdominis (RA), rectus (RF) and biceps femoris (BF), gastrocnemius medial head (GM) and tibialis anterior (TA) were measured bilaterally in lying and standing position by MyotonPRO device (Myoton Ltd, Estonia). *Results:* After 3-month NOPS therapy significant increase of the stride length and improvement of hip, knee and ankle joint kinematics were found during gait as compared with the initial data. Characteristics of RA muscle tone decreased ($p<0.05$) while lying after the therapy period, whereas for other measured muscles no significant changes were noted. *Conclusion:* Motor function re-activation during gait and trunk muscles' tone re-distribution were found after 3-month therapy using the neuro-orthopaedic pneumosuit Atlant in preschool children with spasticity caused by cerebral palsy.

Keywords: cerebral palsy; spasticity; physical therapy; walking; muscle tone.

C. STROKE, BRAIN INJURY, AND SPINAL CORD INJURY REHABILITATION

PP9

C3-C4 SPINAL CORD INCOMPLETE INJURY: ACUTE REHABILITATION FOR BETTER FUNCTIONAL OUTCOME

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Introduction: Incidence of traumatic spinal cord injury (SCI) in Latvia is approximately 25 per million each year [Nulle, 2014]. Contusion represents 25–40% of the cases [Hulsebosch, 2002]. Within 1-3 days SCI patients experience secondary pathological changes that amplify the initial traumatic injury and result in edema, spreading

necrosis, inflammation, ischemia, and proliferation of reactive glial cells. Therefore, medical therapy is crucial in this phase [Girardi, 2000]. If there is no sufficient functional improvement in few days, application of physical therapy is considered appropriate [Petrov, 2005]. Rehabilitation in patients with SCI should begin as soon as possible. Delay may adversely affect functional recovery and seems to be a relevant prognostic factor of functional outcome [Scivoletto, 2005]. Also, early interaction rapidly reduces the risk of possible complications [Parker, 2013]. There is data demonstrating the role of activity dependent neural plasticity in recovery of function after SCI. Passive and active movements are powerful afferent and efferent stimuli, inducing neuronal disinhibition in the area of functional injury and developing new impulse transmission pathways. FES (functional electrical stimulation) treatment improved lower limb ASIA motor and sensory scores, decreased spasticity, indicating neuromodulation and remediation of paralysis [Martin, 2012]. *Case presentation:* Patient J.A., age 37. *Diagnosis:* Spinal cord contusion at C3–C4 level. Active mobilization of the patient was initiated on the third day of hospital stay. Paravertebral 6.5 Hz magnetic stimulation was applied. Lower limbs FES was performed once daily for 15 days. Patient's wife was educated and actively participated in the rehabilitation process. Neurological status was evaluated using the ASIA scale and activities of daily living (ADL) – using the Barthel index (BI). Evaluations were performed on the first day of rehabilitation intervention (ASIA motor DX=0, SIN=0; sensor DX=30, SIN=30; BI =2) and at the discharge (ASIA motor DX=50, SIN=45 sensor DX=51, SIN=51; BI =12). *Conclusion:* This case study indicates that early rehabilitation and mobilization are safe and reduce the physical complications associated with injury. The reasoning behind is that early activation and stimulation of the patient ensure the optimum utilization of the neuroplasticity and recovery potential.

PP10

STROKE PATIENTS' FUNCTIONAL INDEPENDENCE IMPACT ON THEM AND THEIR RELATIVES' PSYCHOEMOTIONAL CONDITION

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Methods: The study included 58 patients after stroke and 58 of their relatives. The average age of the patients was 70±7.69 years. Examination and survey were done twice: at the beginning and end of the rehabilitation. The data was gathered by testing functional ability applying Barhel scale, mobility and movement by FIM tests additional parts and 10 meters walking test. The HAD scales were applied to evaluate patients and their relatives psychoemotional status. Data analysis was performed using statistical analysis SPSS 20.0 for Windows and Excel 2010 programs. Calculated paired Student's t-test and Pearson linear correlation coefficient were used. *Results:* During rehabilitation the functional independence status for stroke patients improved their, and their relatives', psychoemotional status and the walking distance increased ($p<0.05$). The average reverse correlation ($r=-0.43$) between patients' functional independence and anxiety or depression scale indicators was noticed in the beginning of rehabilitation ($p<0.05$). Meanwhile, at the end of rehabilitation the difference between these variables was statistically significant ($p<0.05$) inverse but weak correlation ($r=-0.31$). The examination of stroke patients' functional independence upward impact on the psycho-emotional state of relatives, at the beginning of rehabilitation had a statistically significant an average correlation ($r=-0.43$; $p<0.05$). Meanwhile, at the end of rehabilitation a reverse weak correlation ($r=-0.31$) was established between individuals after stroke Barthel Index results and relatives HAD scale results. *Conclusions:* Increasing stroke patients' functional independence may reduce their and their relatives' anxiety and depression.

PP11

THE IMPORTANCE OF BEING AWARE OF DIFFERENCES WHEN COMPARING RESULTS OF STROKE REHABILITATION IN DIFFERENT COUNTRIES

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Background: In-patient rehabilitation is a commonly used complex intervention to improve a person's independence after stroke. Evaluation and comparison of the effects of routine clinical practice could provide a contribution towards optimization of stroke care. The aim of this study is to describe results of in-patient rehabilitation as a complex intervention for persons after stroke and explore possible differences between two countries. **Methods:** Data from 1,055 Latvian and 1,748 Swedish adult patients after stroke receiving in-patient rehabilitation, during 2011–2013, was used for this retrospective cohort study. Qualitative description of systems, as well as information on basic medical and socio-demographic information, and organizational aspects were reported. Change in the Functional Independence Measure during rehabilitation was investigated. In 6 domains of the instrument, the shifts for 'total dependence', 'partial dependence' and 'independence' were analysed using ordinal regression analysis. **Results:** The components of stroke care seem to be similar in Latvia and Sweden, but there are potential content differences. There were differences regarding start of rehabilitation as well as its length. Patients in Latvia are more likely to be independent when admitted and discharged from rehabilitation. However, patients in Sweden are more likely to improve during the rehabilitation period. **Conclusions:** The content of in-patient rehabilitation is different in the two countries, although the components of the rehabilitation are reported as being the same, contextual factors may influence results. Therefore, comparison of stroke rehabilitation requires caution.

PP12

MANAGEMENT OF NEUROLOGICAL COMPLICATIONS AFTER WEIGHT LOSS SURGERY

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We describe a case including long-term rehabilitation of a 32-year-old woman with a development of a Wernicke's encephalopathy (WE) and of severe polyneuropathy following a sleeve gastrectomy without any sleeve stenosis. The patient was affected by morbid obesity (body mass index 52.2). The surgical procedure was performed without complications. After three months she developed generalized fatigue, vomiting, forgetfulness, oculomotor disturbances, lower hemiparesis and complete loss of appetite. The evolution of symptoms suggested an acute phase WE secondary to vitamin B1 deficiency. The treatment in hospital lasted 4 months and included replacement of vitamin B1, physiotherapy and psychological treatment. About 8 months after onset of neurological symptoms, the patient was able to walk without assistance however memory and personality dysfunction remained. Vitamin B1 (thiamine) is a vital vitamin, that ensures the stable energetic level of nerve cells. Thiamine deficit will not occur during a normal, balanced nutrition. The condition that occurs from thiamine-deficiency is called beriberi. In the initial neuropathic phase the necessary dose of thiamine is 20–30 mg per day until the patient is completely recovered. To cure the central nervous system dysfunction and serious polyneuropathy that have occurred as a result of bariatric surgery (weight loss surgery) vast amounts of dosages have been generally used – 500 mg in the first 3 days, 250 mg intravenously during the next 5 days and 100 mg/day orally

during the long-term maintenance therapy. In addition to thiamine, the replacement of all macro and micro elements must be assured. Thiamine deficit might result in a heavy neurological deficit, but timely replacement therapy prevents the life-threatening state to occur and enables the recovery of functions. The impact of WE after bariatric surgery is significantly underestimated. Multidisciplinary and complex monitoring and interdisciplinary rehabilitation, in some cases, is necessary before and after bariatric surgery.

PP13

RISK OF FALL ASSESSMENT OF STROKE PATIENTS IN RIGA EAST CLINICAL UNIVERSITY HOSPITAL 'GAIĻEZERS'

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Background: WHO informs that every year records 37.3 million enough severe falls that require medical attention. In Latvia falls (Disease Control and Prevention Centre, 2012) are 13% of all external causes of death among the population aged over 65 years. In Latvian health care system for patient evaluation specific risk of fall assessment is not included. **Purpose:** Assess risk of fall assessment in RAKUS 'Gaiļezers' to patients with ICD diagnoses I60–I63 hospitalized in department 6 from 1st of October 2014 to 31st of January 2015, relevance with the type of stroke, functional disorders. **Materials, Methods:** A retrospective quantitative study includes information from functional specialist assessment protocols in patient medical records. For risk of fall assessment was used standardized Morse Fall Scale translation in Latvian. Statistical calculations with the MS Excel, SPSS 19.0 programs. **Results:** The study involved 453 live patients (262 women, 191 men, average age 72.63±10) of the existing ICD diagnosis. Risk of fall was assessed only in 52% of cases, with an objective assessment in points increased risk of fall was determined in 24% of cases. There was no statistically significant correlation between the risk of fall and gender, age (≥65 years, <65 years) ($p=0.28$, $r=0.02$), stroke localization in hemispheres ($p=0.98$, $r=-0.04$), recurrent stroke episodes ($p=0.32$, $r=0.02$). There was a statistically significant weak correlation between risk of fall and muscle strength reduction in the left side of body ($p=0.00$, $r=0.31$), Berg Balance scale (>40 points) ($p=0.00$, $r=0.37$), Rivermead Mobility index (>15 points) ($p=0.00$, $r=0.49$), sensory function reduction ($p=0.00$, $r=0.32$), statistically significant moderate correlation with sitting balance. **Conclusions:** Risk of fall is associated with functional impairments to patients after stroke. There is significant correlation between the risk of fall and muscle strength reduction, balance, mobility, sitting balance disorders, sensory function impairment. Risk of fall is not associated with age, gender, localization, recurrent stroke. Risk of fall is not considered as a medical problem. It would be important to use risk of fall assessment instrument as a routine assessment of hospitalized patients in the acute phase that allows planning appropriate risk-reducing intervention strategies.

PP14

SPORTS INFLUENCE ON THE QUALITY OF LIFE FOR PERSONS WITH SPINAL CORD INJURY

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Introduction: Among the general population and several clinical populations, a considerable amount of research has shown that regular

participation in physical activity is associated with improvements in quality of life outcomes. In contrast, relatively little research has examined physical activity and quality of life among people living with SCI. Sport is one of the types of physical activity and may be a powerful catalyst for enhancing social participation and community integration for people with spinal cord injury. *Study design:* Cross-sectional study. *Objective:* To assess the quality of life in people with spinal cord injury who are involved in sport and compare with non-sport participants. *Materials and Methods:* Thirty-three participants with SCI who fulfilled the criteria: 1) men, 2) SCI in thoracic or lumbar segment, 3) wheelchair dependent, 4) aged 18–48, 5) at least 2 year post-injury. The participants were divided into two groups: the study group included persons with SCI who were involved in sport ($n=17$), the second group included persons with SCI non-sport participants ($n=16$). Quality of life was assessed using the WHO Quality of Life-BREF questionnaire which assesses four major domains: physical health, psychological health, social relationships and environment. The WHOQOL-BREF contains two items from the Overall Quality of Life and General Health. *Results:* According to the WHO QOL questionnaire results the quality of life in all four domains were higher in the study group. Linear regression analysis showed a statistically significant impact on the quality of life domains psychological health and social relationships. There was a medium strong correlation that sport participants evaluate their overall quality of life higher than non-sport participants. *Conclusions:* 1) Persons with spinal cord injury who is involved in sport evaluate all quality of life domains higher than non-sport participants. 2) Results from this study show statistically significant impact on the quality of life domains psychological health and social relationships. 3) From a rehabilitation perspective, these findings suggest that participation in sport may be effective in improving quality of life in this population. *Keywords:* spinal cord injury, quality of life, sport.

PP15

RESULTS OF COMBINED ELECTROMIO-STIMULATION AND MECHANOTHERAPY IN POST-STROKE REHABILITATION

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Background: Development of new methods for post-stroke rehabilitation is a primary task to be carried out to achieve functional recovery and organic improvement of upper limbs. It's important for the patient's social adaptation. *Objective:* We aimed at assessing the impact of composite electromyostimulation (EMS) and mechanotherapy (MT) on ischemic stroke patients with paresis of upper limbs. *Methods:* We collected data from 40 ischemic stroke patients in the early recovery period with mild and moderate paresis of upper limbs. The main group (MG) consisted of 22 patients, with 12 patients having mild paresis, with 10 patients having moderate paresis. The comparison group (CG) consisted of 18 patients, with 9 patients having mild paresis and with 9 patients having moderate paresis. Patients from CG got rehabilitation that included kinezo- and ergotherapy, drug therapy while the MG patients also got composite EMS and MT. Muscle strength (isometric test) and muscle endurance (isotonic test) of the paretic upper limb was carried out with the rehabilitation equipment Primus RS (BTE Technologies, Inc. USA). Load for training was 5% of maximum strength, that resulted from isometric tests. Stimulation was performed on the m. triceps brachii, m. extensor carpi ulnaris radialis and included 10 sessions. The power of stimulation corresponded to subliminal value. The effectiveness of EMS was checked with electromyography ("Neiro-MVP"). All tests were carried out twice, on admission and discharge. *Results:* We registered the uptrend of all test component in both groups, especially in the MG. The increase in muscle strength of the paretic upper limb after performing low-load training in the MG was 19.1% comparing to 8.2% in the CG. The index of muscle work (isotonic test) increased by 24.2% in the MG (2.3% in the CG). The changes in range

of motion increased by 26.8% in the MG comparing to 7.8% in the CG. Electromyography showed a growth in amplitude of the muscle response, especially in the main group. Hence, the Wilcoxon criterion was 0.00. In the comparison group the Wilcoxon criterion was 16.00 (m. triceps brachii) and 32.00 (m. extensor carpi ulnaris radialis). In the MG there was an increase in amplitude of the response of m. triceps brachii 17.4% and m. extensor carpi ulnaris radialis 18.1% (compared to 6.1% and 5.9% in the CG, respectively) ($p<0.05$). *Conclusion:* We found that the use of EMS and MT in combination contributed to an increase in strength and amplitude of the response of affected muscles of the ischemic stroke patients' upper limbs in the present study.

PP16

ENHANCEMENT OF INFORMATION SUPPORT FOR STROKE PATIENTS DURING THE REHABILITATION PROCESS

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Background: Formation of the adherence of patients getting the post-stroke rehabilitation is closely related to their level of medical knowledge. Patients should understand the purpose, different directions and methods of rehabilitation and their role in them. They should have enough knowledge about the various indicators of health, which indicate the effectiveness of the rehabilitation. Identification of the most important gaps in knowledge of patients helps doctors to work effectively to raise awareness and motivation for a successful rehabilitation. *Aims:* We aimed to study the awareness of stroke patients about the various aspects of rehabilitation for improving their information support at the hospital. *Methods:* Semi-standardized interview based on a specially designed questionnaire containing passport data, a medical part, and a set of questions for the scoring (on a 5-point scale) allowing to explore the awareness on various aspects of rehabilitation. Participants were persons who have had a stroke and had entered the second stage of rehabilitation in a hospital ($n=80$). The study was conducted on the day of admission and the day of discharge. The physicians worked with the patients during their stay at the clinic to increase their awareness in view of obtained source data. *Results:* The lowest levels of initial awareness of patients were observed in the factors of lifestyle modification and understanding the role of occupational therapy and kinesotherapy. Explicative work allowed to increase the awareness of the patients approximately in all the parameters. The greatest extent was in the there areas of the optimum physical activity (dynamics 18%), the role of psychotherapy in rehabilitation (12.5%), ways of normalization of weight (14.6%), ways to deal with stress (13%), sexual activity (25%), monitoring indicators of blood (cholesterol, lipoproteins, sugar – 10.5%), drinking regime (10.6%). However, it remains the position in which the dynamics of awareness was insufficient – it concerned, primarily, understanding the role of physiotherapy, kinesotherapy and occupational therapy (1.05, 4.9 and 2.5%, respectively), logopaedics (2.3%), diet (1.05%), ways of dealing with fatal habits (3.5%). *Conclusions:* Informational support of patients receiving post-stroke rehabilitation is a required component. Currently, it is important to develop the most appropriate forms and methods of information, taking into account the individual patient level and general trends.

Keywords: informational support, rehabilitation process, stroke patients

PP17

MUSIC THERAPY FOR STROKE PATIENTS TO REDUCE MOVEMENT DISORDERS: A SYSTEMATIC REVIEW WITH META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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Background: Stroke is one of the main causes for a functional disability. Improving of the motor functions, after the stroke, is one of the most important rehabilitation tasks. There are trials, showing positive results for using the music therapy methods and techniques, especially the rhythmic auditory stimulation (RAS), for stroke patient rehabilitation. Therefore, summarizing the data from these trials is an actual issue. **Objective:** Summarize the trials about the use of music therapy for stroke patient gait and hand motor function improvement, by creating a systematic review of randomized controlled trials, with meta-analysis. **Methods:** The trials were searched in MEDLINE, Cochrane Trial Register, EBSO (Academic Search Complete and Health Source – Nursing Academic Edition) databases. The trial quality was evaluated by PEDro scale. 14 randomized controlled trials were included in the systematic review. The meta-analysis for 4 gait outcomes and 6 hand function outcomes was performed, using the RevMan software. **Results:** Using a fixed effect analysis model, the following overall effect Z values were calculated for the experimental group, compared with the control group: gait speed: $Z=7.26$ ($p<0.00001$); steps per minute: $Z=7.14$ ($p<0.00001$); step length: $Z=2.52$ ($p=0.01$); gait symmetry: $Z=8.68$ ($p<0.00001$); Fugl-Meyer test: $Z=8.09$ ($p<0.00001$); ARAT test: $Z=0.74$ ($p=0.46$); Box and blocks test: $Z=3.03$ ($p=0.002$); Wolf motor function test: $Z=6.28$ ($p<0.00001$); shoulder flexion: $Z=1.80$ ($p<0.07$); elbow extension: $Z=1.19$ ($p=0.23$). Using a random effect analysis model for outcomes, where trial heterogeneity was large ($I^2>75\%$), the following overall effect Z values were calculated: gait speed: $Z=1.67$ ($p=0.09$), steps per minute: $Z=1.78$ ($p=0.08$), step length: $Z=1.41$ ($p=0.16$); Fugl-Meyer test: $Z=1.29$ ($p=0.20$). **Conclusions:** Gait exercises, combined with RAS, provide better results than gait exercises alone. Statistically significant improvement was detected for all gait outcomes, when the fixed effect analysis model was used. Concerning the use of RAS and other music therapy interventions for hand function rehabilitation, a reliable answer currently cannot be provided. Further research, using larger groups of participants, can support wider use of RAS for gait training, as well as provide more evidence about perspectives of music therapy for hand function rehabilitation of stroke patients.

PP18

FUNCTIONAL STATE OF THE CRANIO-MANDIBULAR SYSTEM IN PATIENTS WITH DISORDERS OF CEREBRAL CIRCULATION

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Background: The ischemic stroke (IS) is usually accompanied by structural and functional disturbances of some human organs. For example, the impairment of central neural regulation can lead to craniomandibular dysfunction through malfunction of cranial nerves. **Aims:** We aimed to give a comprehensive analysis of the cranio-mandibular system of patients with IS. **Methods:** 35 patients (average age 59.2 ± 1.8 years) were examined. They took part in a rehabilitation program for patients with IS. Our study included diagnostics of the neurological and stomatological status and an evaluation using International Classification of Functioning, Disability and Health (ICF). **Results:** All patients had IS and tenderness of temporal, mylohyoid and masseter muscles on one side. The results of evaluation of masseters' function showed that the right muscle had "moderate level of dysfunction" in 45.7% of cases. The left side had the same level of dysfunction in 39.4% of the cases.

The analysis of the right mylohyoid muscle showed that 75.5% of the patients had 59.4% of normal functional possibilities of this muscle. This result corresponded to the "heavy level of dysfunction" whereas the dysfunction of left mylohyoid muscle corresponded to "moderate level" in 46.7% of cases. 98% of the examined had different dentition defects, which had led to mesio-lateral imbalance of the occlusal plane. ICF: s320 and s710. Abfractions and enamel cracks were found at the non-ischemic stroke side in 65.7% of cases, whereas at the IS side in 34.3%. ICF: s3200. The imbalance between muscles and occlusion usually leads to temporomandibular joint (TMJ) dysfunction. Pain during mouth opening was found in 39.6% of the cases. Tenderness of TMJ was found at the IS side in 62.4%. The loss of TMJ function was 53.33%. That result corresponded to "heavy level of dysfunction". **Conclusion:** Inspection results of patients with an ischemic stroke allowed to establish biomechanical violations in the cranio-mandibular system and functional changes of the musculo-articular system, which had pathological impact on structures of mouth and teeth. The revealed violations promoted changes in chewing and digestion efficiency, also change in articulation and speech.

Keywords: craniomandibular system, craniomandibular dysfunction, temporomandibular joint, disorders of the cerebral circulation.

D. LOCOMOTOR SYSTEM REHABILITATION AND PAIN

PP19

HEALTHCARE PROFESSIONALS' PERSPECTIVES ON MULTIMODAL PAIN REHABILITATION IN PRIMARY CARE: A QUALITATIVE STUDY

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Background and Aim: Multimodal rehabilitation (MMR) for chronic pain patients is primarily provided in specialty care, and is now being implemented in primary healthcare. This implementation needs evaluation. National guidelines have been published to support assessment and provision of MMR on the appropriate level. Little is known about primary healthcare professional perceptions of working with patients using MMR. The aim was to study experiences among healthcare professionals working with MMR for chronic pain patients in primary healthcare. **Methods:** Fourteen healthcare professionals were individually interviewed about their primary care work with MMR. The interviews covered experiences of assessing patients and the work with patients in the program. Transcribed interviews were analysed by qualitative content analysis. **Findings:** Four categories emerged: select patients for success; a multilevel challenge; ethical dilemmas; and considering what is a good result. Interviewees experienced MMR work to be useful and efficient, but also challenging because of patient complexity. Inclusion criteria from the guidelines were used if there were enough patients that selection for appropriate inclusion could be made. In some circumstances, all patients were included. Opinions about who is a suitable patient for MMR influenced the selection of patients, e.g. views about gender and ethnicity. Interviewees were conflicted about not to being able to offer MMR to all patients regardless of whether they were about going to return to work. **Conclusions:** According to healthcare professionals, primary care MMR for chronic patient is helpful but also a challenge. Selection of patients is often dependent on factors other than guideline criteria.

PP20

FATIGUE AND CHRONIC LOW BACK PAIN – ARE THEY RELATED?**Marta Fraga, MD¹, Joana Costa, MD², João Páscoa Pinheiro, MD, PhD²**¹Faculdade de Medicina da Universidade de Coimbra, Coimbra, ²Centro Hospitalar e Universitário de Coimbra, Coimbra, Portugal

Introduction: Chronic low back pain represents a major concern of Public Health in Europe, since it affects a large percentage of its active population. People suffering from this condition exhibit high levels of disability and deterioration of their functional capacity. Fatigue is one of the major complaints of patients with chronic low back pain, however, it is a subjective and complex symptom difficult to evaluate. The prevalence and the pathogenesis of fatigue is still not completely understood, although it is known it has a great repercussion on patients quality of life and their perception of health and well-being. In this study, we aim to evaluate the prevalence of fatigue in patients suffering from nonspecific chronic low back pain and its impact in their abilities and performances. **Methods:** This work consists of a non-randomised, transverse study of a 30 nonspecific chronic low back pain patients group (6 men and 24 women), living in Central Portugal, to whom were applied the questionnaire of individual characterization, Visual Analogic Scale (VAS), Fatigue Impact Scale (FIS) and the Roland and Morris Questionnaire (RMQ). **Results:** The data revealed a moderate to high level of disability in RMQ (12.57 average) in patients with a 10 year evolution of nonspecific chronic low back pain. We also detected a statically significant correlation between the intensity of pain and fatigue ($p \leq 0.05$) and also between fatigue and disability ($p \leq 0.001$). **Conclusion:** In conclusion, fatigue is a common symptom of nonspecific chronic low back pain patients and it is associated with pain and disability.

PP21

ACTIVE PEDAL EXERCISER FOR LEG REHABILITATION**Filipa Garcia, MD¹, João Ferreira, PhD², Paulo Ferreira, MD³, Manuel Crisóstomo, PhD², Paulo Coimbra, MD², Sandra Oliveira, MD³, João Pinheiro, MD, PhD³**¹Dept. of Physics, Faculty of Science and Technology, University of Coimbra. Coimbra, ²Institute of Systems and Robotics, Dept. of Electrical and Computer Engineering, University of Coimbra; Dept. of Electrical Engineering, Superior Institute of Engineering of Coimbra. Coimbra, ³Physical and Rehabilitation Medicine, Centro Hospitalar e Universitário de Coimbra. Coimbra, Portugal

Given the important ability of the lower limbs to perform most daily activities for all people and knowing that there is a constant need to develop new ways to help people who do not fully make use of this ability, either by external or physical causes, a tool for motion rehabilitation is being developed. In the market there are already some products for leg rehabilitation. Pedal exercisers and static bicycles are the most common. Mostly, they are very rudimentary because the health staff can't control its use through software. The rehabilitation device presented here is based on a motor assisted static bicycle, which will gradually be triggered, depending on the pressure exerted on the force sensors existing on the pedals, allowing to compensate the leg with mobility problems, helping it to perform the expected cycling movement. There is also a sensor to monitor the patient's heart rate. The heart-rate-data acquisition system is connected to a computer and to the motor controller. With it, it is possible to perform motor control to ensure the efficiency of the treatment and the patient's safety. There is also the possibility of exercising each leg with different parameters, which represents a very useful advantage for stroke patients, and can also compensate for a missing or impaired limb by mimicking the performance of the

healthy leg. A computer interface allows the physical therapist in charge to make a responsible management and an efficient monitoring of the rehabilitation (speed, force on each pedal, exercise profiles, evolution curves). The patient also has a virtual environment where he is motivated to stay close to the reference values, winning or losing points through a score system. If the patient's performance is close to the reference values, he will win more points, but if his performance is farther from it, he will lose points more quickly. In the virtual environment, there is a bicycle that tilts left or right, and a road which inclines up and down, accordingly to the force and speed of the users pedals.

PP22

BOTULINUM TOXIN: A NEW APPROACH TO REFRACTORY COMPLEX REGIONAL PAIN SYNDROME (CRPS) TYPE I – A CASE REPORT**Pedro Aroso, MedDr, Vítor Simões, MD, António Araújo, MD**

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Complex regional pain syndrome (CRPS) type I is a chronic neuropathic pain condition associated with dysregulation of the central and autonomic nervous system. Frequently, it occurs after trauma and typically affects the extremities. Although there is any specific therapeutic protocol, early diagnosis is essential for better outcome. Botulinum toxin has been used in the management of chronic painful conditions, including refractory CRPS type I. Presynaptic inhibition of Acetylcholine release from motor nerves, possible local inhibition of neuropeptides release and others indirect central effects, supports its use. The authors report a case of a 27-year-old female with a 2-year history of CRPS type I that affected the right wrist and hand, presented to the Physical Medicine and Rehabilitation outpatient clinic, after being initially evaluated by a neurology specialist. Her symptoms started after multiple repeated motions while working on a restaurant. She described a persistent severe pain in the right wrist and hand associated with sensory and vasomotor phenomena. The physical examination showed a dystonic flexion of the fingers of her right hand, mild edema, hypoesthesia and painful passive and active movement. Several laboratory and imaging studies were performed; peripheral nerve and expansive lesions were excluded; autoimmune and infectious etiologies were also ruled out. The described clinical findings and performed work-up supported the diagnosis of CRPS type I. During a two-year follow-up, none of the conventional pharmacological and physiatric treatments resulted in any long-term pain relief. After an extensive literature review, it was decided to inject multiple points of botulinum toxin with a mesotherapy gun on forehead and palmar aspect of the right hand. Re-evaluated after a month, the patient had fewer limitations in ADL, greater dexterity and less pain complaints in the affected region. She maintains close follow-up for evaluation and to repeat the procedure if considered necessary. In some cases of refractory CRPS type I to first-line treatments, the administration of intradermal botulinum toxin, may have an important role as an alternative therapy in the functional restoration and sensory desensitization of the affected region, especially when part of a regular physiatric plan.

PP23

SIMULTANEOUS BILATERAL EPIPHYSEAL FRACTURE OF PROXIMAL TIBIA**Jennifer Pires, MD¹, Joana Costa, MD², Sara Rüder, MD², Pedro Figueiredo, MD², João Páscoa Pinheiro, PhD, MD²**¹Centro de Medicina de Reabilitação da Região Centro, Rovisco Pais, Tocha, ²Serviço de Medicina Física e de Reabilitação, CHUC, Coimbra, Portugal

Introduction: Epiphyseal fractures of proximal tibia are rare, with an incidence of 0.5–3% of all epiphyseal fractures and they occur mostly in older children and adolescents during sports activities. **Case report:** A 15-year-old boy was admitted in the emergency department with bilateral knee pain and inability to stand after a jump in a trampoline. There was no significant medical history, including joint or bone pathologies. No previous clinical symptoms of Osgood-Schlatter disease were reported. On physical examination, he had swelling and intraarticular effusion of both knees, with tenderness to palpation. The knees were held in a semiflexed position and any attempt of motion provoked severe pain. No neurovascular deficits were present. X-rays showed bilateral fractures of the proximal tibial epiphysis, classified as Salter-Harris type II on the left tibia and as Salter-Harris type IV on the right tibia. The patient underwent bilateral closed reduction and internal fixation with cannulated screws. Long-leg casts were applied in extension position. Six weeks later, casts were removed and x-rays showed good healing. He presented small effusion of right knee, bilateral pain at femoral quadriceps contraction, bilateral atrophy of femoral quadriceps and sural triceps muscles, limitation of 10° in left knee's flexion and 20° in right knee's flexion. He underwent a rehabilitation program, with pain control, passive and active-assisted mobilization, strengthening of quadriceps and hamstring muscles, gait training with progressive weight-bearing and proprioceptive training. Four months later, he reported improvement of pain, but still showed limitation of 10° in right knee's flexion, with functional repercussion only in squatting. He had no limitations in daily activities. There were no signs of growth disorders. **Discussion:** While fractures of the infantile and adolescent distal tibia are common, the proximal tibia is rarely involved, due to high intrinsic stability. The mechanism of injury and the type of lesion are age-dependent. In late adolescence a flexion type injury is more usual, because the posterior part of the growth plate is usually closed and the anterior part is still open. Complications and neurovascular injuries are rare, and the result of treatment is generally good.

PP24

DIRECT ELECTRICAL STIMULATION OF THE INJURED ULNAR NERVE VIA ACUPUNCTURE NEEDLES COMBINED WITH REHABILITATION MAY ACCELERATE NERVE REGENERATION AND FUNCTIONAL RECOVERY – A CASE REPORT

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Introduction: Poor function recovery and long time of return to work (RTW) are the most common complaints for those who underwent immediate peripheral nerve repair surgery of upper extremities. Alternating current electrical stimulation (ACES) has been used to manage patients with peripheral nerve injury for the prevention of joint contractures but the nerve regeneration. Many studies already showed good recovery of nerve repair surgeries post direct electrical stimulation in animal and human models. This case study described a 32-year-old male suffering of total rupture of the right ulnar nerve. We used direct ACES and daily rehabilitating activities to see whether the recovery can be improved promptly. Patient case presentation The 32-year-old male suffered of total rupture of right proximal forearm ulnar nerve, and partial rupture of flexors. After 2 weeks of the repair surgery, the wound and the suture sites were in good condition so we started intervention of acupuncture combined with functional trainings. Direct ACES on the route of the injured ulnar nerve transmitted by the 2 acupuncture needles inserted in the cubital tunnel was applied. Other needles were placed according to the origins and insertions of the muscles. All needles were connected to electrical stimulators as electrodes. We executed these procedures one time per week and daily rehabilitating activities. The Rosén and Lundborg protocol, DASH scores and electromyography were used to

measure the outcomes. **Discussion:** The patient had distal ulnar nerve lacerated and immediate repair surgery. This may explain why the patient returned to the former job in 3 months and achieved satisfactory recovery in 6 months. Two probable mechanisms for the relation between the acceleration of axon regeneration and direct ACES are (1) axon outgrowth across the suture site, and (2) the number of newly regenerated motor units as well as the affiliated axons significant increase. No prominent side effects were found in the treatment course. **Conclusion:** Direct electrical stimulation of the injured nerve may augment nerve regeneration by three possible mechanisms. Though direct ACES contributed to dramatic effects with minimal adverse in this case, further investigation of treatment protocols and definite mechanism still needs to be established.

PP25

INSTITUTIONALIZED ELDERLY REHABILITATION – EFFECTS ON PHYSICAL FITNESS AND QUALITY OF LIFE

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Physical activity is important for healthy ageing and may help to maintain good function in older age. Institutionalization is often due to functional decline and institutions frequently do not provide activities to maintain or regain functionality. Exercise therapy is an important component of rehabilitation programs for elderly and helps reduce pain, improve joint stability, functional ability, muscle strength and endurance, and aerobic capacity; preventing bone loss and fractures, and improving or maintaining quality of life. This study aims to investigate if a physical exercise program improves self-perception of health status, physical fitness, muscle strength and body composition in a group of institutionalized elderly. A quasi-experimental study was conducted using the Portuguese version of the Short Form-36 Health Survey (SF-36v2), the Rikli Jones Senior Fitness Test, hand dynamometry and bioelectrical impedance before and after a physical exercise program. A total of 20 elderly aged 76.1±8.7 years with 18.3±13.3 months of institutionalization, participated in a two-month of physical exercise program. Results show that scores of SF-36v2 after the program had significantly increased in physical and mental components. They also increased significantly in scales such as physical functioning, bodily pain, vitality, social functioning, general health and mental health. Physical fitness results show that all components improve after the intervention. Noteworthy are aerobic endurance, lower flexibility, superior flexibility and agility, speed and dynamic balance all with statistical significance. An increase in muscle mass and a decrease in body fat, metabolic age, visceral fat and body water was observed, but without statistical significance. Bone mass had no changes. Physical exercise programs can contribute to improve physical status and self-perception of well-being leading to autonomy and confidence in performing daily living activities. In institutionalized elderly population this is a very important step towards independent life.

PP26

EXPERIENCE OF A MOBILISATION AND ACTIVE EXERCISE PROGRAM ON THE RANGE OF MOTION OF BEDRIDDEN PATIENTS WITH DISUSE SYNDROME

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Introduction: Disuse syndrome is a disorder that is most often associated with acute or chronic disease complications. Despite disuse

syndrome may affect all organs and systems, the impact of range of motion limitations caused by immobility on functional capacity to perform activities of daily living is often very severe. Mobilization and active exercise have beneficial effects that counteract the impact of immobility on the body. *Objective:* This study aims to assess the effect of a mobilization and active exercise program on the range of motion of bedridden patients with disuse syndrome. *Method:* A quasi-experimental pre-post study was developed. The sample consisted of 26 persons that have been bedridden for more than six months at home. A mobilization and active exercise program was designed, fitting patients' individual needs and implemented 2 times/week for 2 months. Caregivers were trained to transfer the patient from bed to chair and to repeat active exercise every day. Data collection was performed before and after intervention, using the Barthel Index and a goniometer for range of motion evaluation. *Results:* 26 study participants, aged 77.19 ± 11.67 and bedridden for 18 months (18.73 ± 15.25) were enrolled, but only 24 completed the intervention program. There was a minimal difference in the sex distribution with 7.6% more women than men. The results showed a statistically significant increase on range of motion of the shoulder, elbow, wrist, hip and knee. There was statistical significance in plantar flexion but not on the dorsiflexion. Barthel Index score increased significantly (28.65 ± 21.28 vs 31.46 ± 23.28 ; $p=0,035$) after the mobilization and active exercise program. *Conclusion:* A mobilization and active exercise program implemented regularly may contribute to improve range of motion of bedridden patients with disuse syndrome.

PP27

INSTITUTIONALIZED ELDERLY REHABILITATION – IMPROVING BALANCE ABILITY WITH A PLATFORM TECHNOLOGY

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Introduction: Ageing is associated with a decrease in the functionality of all organic systems. One factor that affects the quality of life in the elderly is the decrease of balance that sometimes leads to falls and consequently the fear of falling. In this sense, it is essential to try to mitigate this progressive degeneration. Wii is a platform technology and method that can be used to improve balance in elderly and thus enable them a better quality of life and well-being. *Objective:* To investigate whether an exercise programme using Wii games, improve balance in a group of institutionalized elderly. *Method:* A quasi-experimental study was design in which it was used a sociodemographic questionnaire, nine of the ten tests of Fullerton Balance Advanced Scale to assess balance and the Falls Efficacy Scale (FES) to assess fear of falling. The exercises program were performed on the Wii platform, and applied in 10 minutes session three times a week for two months. *Results:* Twenty elderly were included, 70% women, with an average age of 82.20 ± 4.92 years, 55% were widowed, 35% single and 10% married. The results of the Fullerton Balance Advanced Scale evaluation showed that 17 elderly improved balance and 3 elderly decreased. The Fear of falling results showed a statistically significant increase ($Z=-2.875$; $p=0.004$) from the first to the second assessment moment (67.20 ± 12.07 vs 70.25 ± 12.94). *Conclusions:* The exercise program set up with the Wii platform improved balance ability and decreased fear of falling in the elderly who participated in this study. Wii games can be used in rehabilitation of elderly to improve balance and reduce fear of falling.

PP28

IMPLEMENTING A PROPRIOCEPTIVE EXERCISE PROGRAM IN ELDERLY

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J Rehabil Med 47

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Introduction: With aging, the human body goes through a period of transformation that generates decline of some physical capacities, such as decreased flexibility, agility, coordination, joint mobility and balance, compromising the functional capacity of older people, which is essential for carrying out Activities of Daily Living. The physical exercise is key to improving the functional capacity of the elderly, in particular with proprioceptive exercises, which have been used in recent studies with elderly. *Objective:* The aim of our study is to evaluate the effects of a proprioceptive exercise program on functional capacity in the elderly group. *Method:* To achieve this objective, we designed a quasi-experimental study with pre- and post-intervention measurements. All participants were evaluated with hand grip strength, finger pinch force, the Tinetti Gait and Balance Test, single leg balance test, evaluation of senior fitness test by the “arm curl test”, “sit to stand test” “timed up and go test”, “back scratch test” and “chair, sit and reach test “ by Rikli & Jones. The program was conducted 2 times a week for 12 weeks. *Results:* The sample consisted of 24 elderly, 12 of them in the intervention group (67.25 ± 2.01 years) and the other 12 in a control group (68.08 ± 1.73 years). According to the results, the intervention group showed a statistically significant improvement in all evaluations performed after the program. In the control group, there was no significant improvement in functional capacity components evaluated after 12 weeks. *Conclusion:* Our proprioceptive exercise program proved to be improving the functional capacity of the elderly. This proprioceptive training program is one of the pioneers in this specific area with great potential for future use.

PP29

ELDERLY WITH FEMORAL NECK FRACTURE: ANALYSIS OF FALLS AND FUNCTIONAL CHANGES

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Introduction: According to the Portuguese Ministry of Health there are in Portugal more than 9,500 femoral neck fractures each year, which reached hospital expenses of around 52 million euros. The same source estimates the mortality from 20% to 30% over a year after fracture; referring to severe disability it reaches a prevalence of 40% in the same period. *Objective:* To know the effect on the functional capacity of the elderly falling victim, which results in femoral neck fracture. *Method:* This research is a descriptive, longitudinal, prospective correlational study with a quantitative methodology. The sample consisted of 35 elderly patients at the first assessment and thirty in the second, all admitted to the trauma service of the Bragança Hospital Unit, Portugal. Data collection took place between February and June 2014 and the second evaluation was conducted between August and December, 2014. It was intended to assess the degree of recovery of functional ability after fracture of the proximal end of the femur, the fear of falling and characterize the falls. The instrument used for calculating the degree of functional recovery was the Katz index. *Results:* Of the sample studied 33.3% had femoral neck fracture and the remaining 66.6% had trochanteric, subtrochanteric and intertrochanteric fractures. Surgical treatment was instituted in 93.3%. The values of the Katz index decreased from 15.53 to 12.93 points. The degree of recovery of functional independence is significantly higher in patients who underwent osteosynthesis with hip prosthesis, whether it was partial or total. *Conclusion:* The variables that most influenced the functional recovery were the type of fracture and the type of osteosynthesis. There was a decline in functional capacity and in parallel an increase in the fear of falling.

PP30

CLINICAL APPLICATIONS OF VISUALLY-PLASTIC ART, MUSIC, DANCE-MOVEMENT AND DRAMA THERAPY IN PHYSICAL REHABILITATION

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Introduction: Holding a status of functional specialists in the Republic of Latvia, visually-plastic, music, dance-movement and drama therapists are gradually becoming more present, not only in psycho-social, but also in physical rehabilitation programs, being part of multidisciplinary team. The purpose of this study was to give an overview of the clinical applications of visually-plastic, music, dance-movement and drama therapy in physical rehabilitation and to discuss the role of art, music, dance-movement and drama therapists within the multidisciplinary team. **Materials and Methods:** To complete the study, the authors carried out a review of 45 articles selected from EBSCO, Science Direct and ProQuest data bases, utilizing such keywords as "visually-plastic art therapy", "music therapy", "drama therapy", "dance-movement therapy", "complementary therapies", "arts-based therapies", "physical rehabilitation". **Results:** The results imply that interventions of creative therapies may be effective to improve the psychosocial and interpersonal (Lev-Wiesel & Liraz 2007; Silverman 2011; Gold et al 2004), cognitive (Groß et al 2010; Kim & Kang 2013; Aldridge 2001; Thaut 1999) as well as physical (Bradt et al 2010; Beebe et al 2010; Christie 2006; Thyme et al 2009; Tomaino 2002; Baumann et al 2009; Nickel et al 2003) functioning of the rehabilitation patient. Therapeutic alliance, safe environment, emotional bonding and emphasis on resources counted up with expressive, creative, physical and intellectual challenge inherent to creative therapies are resulting in consistent participation, compliance and sustained motivation that may lead to recovery-with-lesser-pressure. **Conclusions:** Visually-plastic art, music, dance-movement and drama therapy may be effectively applied during the physical rehabilitation process to improve the psychosocial and interpersonal, cognitive as well as physical functioning of the patient.

Keywords: visually-plastic art therapy, music therapy, drama therapy, dance-movement therapy, complementary therapies, creative therapies, physical rehabilitation.

PP31

ASSESSMENT, MONITORING AND EVALUATION: AN OVERVIEW OF TOOLS UTILIZED BY VISUALLY-PLASTIC ART, MUSIC, DANCE-MOVEMENT AND DRAMA THERAPISTS OF LATVIA

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Introduction: Assessment, monitoring and evaluation are integral parts of any art therapy process. Firstly – leading to the best-tailored goal-setting, the most suitable therapy plan and further therapy, secondly – allowing therapists to be understood in terms of efficiency and efficacy. The purpose of this study was to provide an overview on arts-based assessment tools utilized by therapists in Latvia. **Materials and Methods:** To complete the study, the authors carried out a review of relevant literature ($n=40$) as well as conducted an on-line survey of fellow colleagues – therapists ($n=33$). **Results:** There are numerous arts-based assessment tools commonly used by therapists in Latvia. For music therapists, this is Individualized Music Therapy Assessment Profile (Baxter et al 2007) that provides a clear profile of patients' physical and psychological functioning as performance is measured based on 10 domains, 53 sub-domains and 374 skills, and the Music Therapy Diagnostic Assessment (Oldfield 2006; Oldfield 2004) tool, which is validated with the Autism Diagnostic Observation Schedule. For visually-plastic art therapists, this is a Draw a Story (Silver 1987, 2002) assessment used for youngsters at risk of depression and violent behaviour (Silver 1988, 1993, 1996, 2005; Earwood et al 2004), and a Diagnostic Drawing Series (Cohen et al 1986, 1994), proven to be effective for various populations with psychiatric illnesses (Kessler 1994; Marais & Barnes, 1993; Cohen et al 1988; Morris 1995; Cohen et al 1988, 1994; Mills et al 1993, 1996). For dance-movement therapists, this is Laban Movement Analysis (Laban 1947) - a movement observation and analysis system as well as Kestenberg Movement Profile (Kestenberg & Loman 1999) – which can be applied to assess children with autistic spectrum disorder, infants as well as parent-infant interaction (Kestenberg et al 1999; Sossin & Loman, 1992). For drama therapists this is Six-Piece Story Making (Lahad, 1992) – a projective technique which can be used in psychotherapy assessment or treatment, as well as A Taxonomy of Roles (Landy 1991). **Conclusions:** There are numerous arts-based assessments, monitoring and evaluation tools existing and commonly utilized in Latvia. Adaptation of existing and construction of new assessment tools is one of the research divisions of Rīga Stradiņš University study programme Arts therapies.

Keywords: visually-plastic art therapy, music therapy, drama therapy, dance-movement therapy, assessment, monitoring, evaluation.

PP32

MUSIC THERAPY IN HEALTHCARE ACROSS EUROPE: A COMPARATIVE STUDY

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The aim of the study was to analyse and compare status of profession and presence of music therapists in healthcare in Latvia, Italy, United Kingdom, Poland and Turkey. **Materials and Methods:** To complete the study, the authors carried out a review of structure and content of existing music therapy studies, vocational education and further education programmes, examined both external and internal legislative acts regulating the profession and its representation within the health care system as well as organized interviews with experts – university staff, leaders of associations representing interests of music therapists in Latvia, Italy, United Kingdom, Poland and Turkey, being attainable with support of project "MUSic, Performing and Creative Arts Professions Involved in Healthcare: a portal for VET promotion and mutual recognition of profiles (MUSA)" financed by European Commission's Lifelong Learning Programme (Project number: 539899-LLP-1-2013-1-IT-LEONARDO-LMP). **Results:** Based on research, it is possible to claim, that in United Kingdom and Latvia the music therapy profession in health care is comparatively well settled, regulated and state-financed, whereas in Poland, Italy and Turkey the pathway – educational, legal and occupational

issues - is still at the beginning. Job descriptions and occupational appearance of the music therapy profession in healthcare throughout Europe suffer from a quite diverse and sometimes diffuse image; music therapists sometimes being identified not as a profession, but simply volunteers, which is counterproductive and an unsatisfying situation. *Conclusions:* Harmonization of the legal framework and common identification of the professional competence throughout Europe would help to stabilize and develop the profession as well as promote mobility of music therapists within the European Union. *Keywords:* music therapy in rehabilitation, music therapy in healthcare, complementary therapies in healthcare, European Union, education.

PP33

REHABILITATION OF PATIENTS WITH ARTHROSCOPICALLY TYPE II SLAC LESION ARTHROPLASTY

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Objectives: Conventional surgical options in the treatment of osteoarthritis of the wrist, caused by damage grade II to the scapholunate ligament (SLAC II) are proximal carpectomy, four corners arthrodesis or a partial or complete fusion of the carpus. We present a technique for the surgical treatment of SLAC II injury: resection arthroplasty and tendon interposition of the radial column of carpus, arthroscopically performed, using tendon graft of Palmaris longus muscles and flexor carpi radialis, with styloidectomy. An evaluation of the clinical and functional outcome is made at an early stage – 6 months. *Methods:* The authors describe a case of a 70-year-old man without medical or surgical history, submitted to the technique described by SLAC type 2 (lunar scapho advanced collapse) of the right wrist and consequent conflict radius-scaphoid. The surgical technique used was arthroscopic styloidectomy, scaphoid fossa chondroplasty and tendon interposition fixed with anchor to the radial ligament complex. It was later referred to Physical Medicine and Rehabilitation to improve and obtain maximal functionality. *Results:* After 5 weeks with plaster splint, the patient started a daily rehabilitation plan in the first month and bi-weekly during the two following months. At the third month he presented mild edema in the right wrist and hand, few limitations in daily living activities, greater mobility, residual pain limitation of active and passive movements and superior grip strength. Six months after, he presented only residual pain during radial and ulnar deviation, wrist strength recovery when compared to the contralateral side and a good degree of satisfaction. *Conclusion:* Arthroscopically resection arthroplasty and tendon interposition may be an alternative surgical option for patients who present type II SLAC injury to the conventional surgical options, especially when integrated with an early and regular rehabilitation plan. The main advantage of this approach is to preserve carpal anatomy, preventing or delaying a fixation.

PP34

EXPERIENCE OF COLLABORATION BETWEEN NON-GOVERNMENTAL ORGANIZATIONS OF SWEDEN AND LATVIA: FEEDBACK FROM USERS OF ASSISTIVE DEVICES

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Background: In order to promote availability of assistive devices (AD) for persons with functional limitations in Latvia, international collaboration between two non-governmental organizations (NGO)

was launched. The charity Foundation from Sweden VAGGAN supported the establishment of non-governmental organization The Park of Special Aids (in Latvian Speciālo palīgīdzekļu parks – SPP) (Latvia). This long-term collaboration project aimed at developing services in the field of AD that are alternative to those provided by the state funding of Latvia. Feedback from service recipients is essential for sustainability of this collaboration project. *Aim:* To analyze users' satisfaction with assistive devices and related services provided by VAGGAN and SPP. *Methods:* All together 430 participants – users of AD provided by SPP during period May, 2014–May 2015 were invited to participate in telephone interviews based on Quebec User Evaluation of Satisfaction with Assistive Technology (QUEST, developed by Demers, Weiss-Lambrou, Ska, 2000). A total of 130 clients agreed to participate. In order to obtain demographic data and clarify the effect of AD upon daily activities of an individual, as well as identify AD usage habits, the respondents were asked to answer a demographic data questionnaire. *Preliminary results:* Based on the share of different AD issued and used by participants in the period of investigation, the AD evaluated were divided in the groups as follows: children wheelchairs, children therapy chairs, adult wheelchairs, walkers, elbow crutches and hygiene aids. The total number of 175 AD were received and used by respondents. The results of the study will (1) provide objective assessment of the ongoing collaboration between VAGGAN and SPP, (2) reveal the quality of AD and related services provided by SPP and (3) help to develop the provision of AD further. *Keywords:* assistive devices, user satisfaction, evaluation, QUEST, collaboration, NGO.

PP35

THE EFFECTIVENESS OF PHYSIOTHERAPY ON PELVIC FLOOR DYSFUNCTION

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Background: In Lithuania every 5 person has pelvic floor dysfunction, which is more common among women. Biofeedback therapy provides awareness of the physiological action of the pelvic floor muscles by visual mean and helps to assess pelvic floor muscle strength, endurance and coordination. *Aim:* To evaluate the effectiveness of physiotherapy on pelvic floor dysfunction. *Methods:* This study was conducted on October 2014–May 2015 at the Centre of Rehabilitation, Physical and Sports Medicine of Vilnius University Hospital „Santariškiu Clinics”. The study involved 37 patients with urinary or bowel disorders. The pelvic floor muscles was evaluated by pressure feedback and the patients were given a questionnaire to fill out. *Results:* 59% of the patients avoided to travel, 67% of patients were worried about the inconveniences, 65% were concerned about where the toilet was. 65% of the patients felt inferior, 62% were upset, 57% felt unhealthy, 51% unhappy. 59% worried about fecal and urine smell. Patients with urinary disorders ($n=21$), 35.7% woke up to urinate 4 or more times during the night. 42.9% of the patients felt the desire to urinate every hour. Urinary leakage episodes during exercise indicated 28.6%. Among patients with defecation disorders ($n=16$) 50% experienced liquid fecal incontinence every 2–3 days. 71% of the patients reported experiencing severe defecation. After a two-month home programme the number of patients who went to urinate during the night 4 times declined to 14.3%, while 21.4% did not feel the urge to urinate 4 hours after the last urinate. Straining of solid fecal decreased to 43%, liquid stool by 37%. 58% of patients worried about the inconveniences, and 15% were concerned where the toilet was. 24% felt upset, better by themselves. 13.5% – less shy of urination. *Conclusions:* There were significant improvement in quality of life of patients with pelvic floor dysfunction after 10

physiotherapy procedures. Decreased depression and improved self-perception ($p < 0.05$). It was found that urination and defecation disorder symptoms decreased. Pressure feedback showed the improvement in pelvic floor muscles strength, that means that the majority of the patients learned to perform regular pelvic floor muscles contraction without engaging assistant muscles.

E. CARDIOVASCULAR AND PULMONARY REHABILITATION

PP36

EFFECTIVENESS OF DIFFERENT PHYSIOTHERAPY METHODS FOR PATIENTS WITH INCREASED CARDIOMETABOLIC RISK

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Introduction: Every year over the world about 16.7 million people die from cardiovascular diseases (World Health Organization). World Health Organization experts announce the prognosis that in 2020 more than 70% of all cases of diseases will be caused by inappropriate human lifestyle and mostly by deficient physical activity. A growing number of evidence based on research show that regular aerobic training and physical exercises increase human physical capacity (Jones, Cartier, Ziemann et al.), reduce the risk of developing various diseases (Meyers et al.; Kodama et al.; Martinmäki et al.; Ross Bradshaw), and improve quality of life (Garatachea). The aim of the study was to analyze the effectiveness of different methods of physiotherapy for patients' with increased cardiovascular risk muscular strength and endurance and physical capacity. **Methods:** Thirty-nine patients (age range 40–64 years) with increased cardiovascular risk participated in the study. The participants were divided into two groups: the study group ($n=20$) and the control group ($n=19$). Patients of the study group performed aerobic workouts ($n=10$) and muscular endurance workouts ($n=10$). Patients in the control group had only aerobic workouts ($n=20$). The participants' muscle strength, abdominal and back muscle static endurance and physical capacity were evaluated. **Results:** The results showed that after training the study group patients' muscle strength was significantly higher than in the control group ($p < 0.05$). The endurance of abdominal and back muscle of the study group was after a complex training significantly higher than in the control group after only aerobic training ($p < 0.05$). A statistically significant improvement of physical capacity according to MET was assessed in both groups ($p < 0.05$). **Conclusion:** The results show that for patients with increased cardiovascular risk, the combined application of aerobic workouts and strength training is more effective than only aerobic workouts on the increase of abdominal and back muscle strength and endurance. The lower number of aerobic training (replacing part of training with strength training) in the study group did not affect the final results of physical capacity compared to the control group.

PP37

PULMONARY REHABILITATION IN COPD EXACERBATION: IS UPPER LIMBS EXERCISE TRAINING SAFE AND EFFECTIVE?

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Pulmonary rehabilitation in chronic obstructive pulmonary disease (COPD) exacerbation has several advantages such as reduction of

hospital readmission and mortality, the considerable increase of quality of life and functional improvement translated into a better outcome in the 6 min walking test. Upper limbs exercise is recommended in pulmonary rehabilitation guidelines because it reduces stress, decreases dyspnea and dynamic hyperinflation and improves functional capacity with impact on daily living activities. This study aimed to evaluate the functional changes that occur in COPD patients with exacerbation, after a program of resistance exercises of the upper limbs. A multi-case study was developed on seven patients with COPD, GOLD III and IV (diagnosed by FEV) in exacerbation. Data collection included an initial interview for clinical history, functional assessment using the London Chest Activity of Daily Living (LCADL), the 6 min Pegboard and Ring Test (6min PBRT), handgrip strength and the Saint George Questionnaire for quality of life assessment. A program of upper limbs exercise training was implemented. Vital signs (blood pressure, respiratory rate, heart rate and pain, dyspnea (Borg Dyspnea Scale) and peripheral oxygen saturation were assessed before and after exercise training and during if the patient presented any symptom. After 7 days of treatment, assessment instruments were applied. All 7 participants (2 women, 5 men), aged between 50 and 85 years, had as risk factor being ex-smokers. The entire group has several comorbidities (diabetes, heart problems, anxiety/depression, osteoporosis) and low inclusion in rehabilitation or exercise programs. Upper limbs exercise during an exacerbation period appeared to be safe and beneficial in all of the cases studied. Vital signs, dyspnea and peripheral oxygen saturation remain on normal range during exercise training sessions. Data obtained in 6min PBRT, LCADL and handgrip strength showed a positive evolution between assessments in all participants resulting in an improvement of exercise capacity of the upper limbs and in an increase of their functionality. There was no significant changes in quality of life. The results may indicate that the inclusion of resistance active exercises in rehabilitation programs tend to improve skeletal muscle strength and performance in ADL.

PP38

INTERVENTION IN CARDIAC REHABILITATION: IS EXERCISE TRAINING EFFECTIVE IN DECOMPENSATED HEART FAILURE PATIENTS?

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Heart failure is characterized, from a functional point of view, as a pathology that causes limitations in carrying out the activities of daily living and consequent loss of functional and instrumental autonomy due to its classic symptoms such as: dyspnea, edema, easy tiredness and intolerance to activity. These symptoms make the patient become increasingly dependent and searching for inactivity as a way to preserve energy and avoid those symptoms. It is known that exercise is beneficial and safe when applied according to the characteristics of the patient and his medical condition, even in the process of stabilization of the acute phase of its pathology. Through the exploratory method, clinic and physiologic variables have been identified that could change with exercise and which allow a better response to exercise in the acute phase of the disease. Patients with decompensated heart failure of a cardiology ward were selected to comply with a minimum of 3 sessions of a program of physical exercise with increasing levels of intensity. Vital signs, Borg scale to subjective perception of effort and the London Chest Activity Daily Living (LCADL) scale for dyspnea associated with activities of daily living were assessed before and after the implementation of the program. Intensity and progression on the program were also evaluated by exercise parameters such as number of laps on the exercise peddler, number of meters walked and number of

steps climbed. The study involved 20 patients with 64±9.9 years, 80% men, with a length of stay of 18.6 days on cardiology ward, between September 2013 and April 2014, with an average of 4.4 program sessions. Data obtained in LCADL (29.9±8.9 vs 20.9±6.8), exercise parameters and Borg score after the exercise showed a positive variation, meaning that patients improved their functional capacity along the program, despite being in acute phase of heart failure. Descriptive and inferential statistics analysis of the data allows us to conclude that patients with previous practice of exercise, lower basal heart rate, higher oxygen saturation, lower number of associated cardiovascular risk factors presented a better response to the exercise and with a better evolution throughout the program.

PP39

FUNCTIONAL TRAINING – EFFECTS ON BLOOD PARAMETERS IN HEMODIALYZED PATIENTS

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Chronic kidney disease (CKD) is characterized by a progressive and irreversible decline in kidney function and that affects all other organs and systems. Patients with CKD on hemodialysis have reduced functional capacity and sedentary behavior, which results in increased morbidity and mortality. Over the past few years programs have been developed and implemented to maximize functionality with demonstrated beneficial effects in this specific population. Changes in the blood profile, resulting from these intervention programs, are not yet sufficiently studied. The objective of this study is to analyze the changes in the blood profile of the hemodialyzed patients after the implementation of a training program to maximize functionality. To achieve this objective a causal comparative research at a hemodialysis clinic was started. 24 individuals (intervention group) were included in a program of aerobic training (exercise bike and treadmill) before hemodialysis and 27 maintained their usual routine (control group). Anthropometric measurements (weight, height, body mass index) and functional capacity (sit-to-stand test, up and go test and handgrip strength test) were taken before and after the exercise program; the blood profile was monitored (leukocytes, neutrophils, hemoglobin and hematocrit, urea, creatinine, albumin, sodium, potassium, calcium, phosphorus, iron, iron-binding capacity, ferritin, glucose and parathormone) monthly throughout one year. The duration of hemodialysis, the administered dosage of darbepoetin and the adequacy ratio of hemodialysis treatment were assessed. The exercise program proved to be decisive on improving the functional capacity of these patients which translates into clear gains in autonomy to performing activities of daily living. In the intervention group the darbepoetin administration dosage has decreased, keeping the anemia parameters unchanged, which is an advantage for patients and reduces treatment costs. For other analytical parameters studied, it was not possible to establish effective relationship with the implementation of the exercise program. However, this variability was observed in both groups, which seems to indicate that the program had no adverse effects on these parameters and particularly in the dialysis efficacy. Hemodialyzed patients will benefit of rehabilitation care, with programs to maximize functionality, in daily treatment, therefore rehabilitation professionals must take part on multidisciplinary teams in hemodialysis clinics.

PP40

EARLY MOBILIZATION AND EXERCISE IN ELDERLY PATIENTS AFTER CORONARY ARTERY BYPASS GRAFTING

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J Rehabil Med 47

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Introduction: Coronary Artery Bypass Grafting (CABG) is one of the most commonly performed surgical procedures. During the postoperative period, the prolonged bed rest increases the possible occurrence of systemic complications, resulting from immobilization. **Aim:** This quasi-experimental study aims to analyze the hemodynamic variables and the peak expiratory flow (peak flow) during the application of two different exercise protocols (with and without passive exercise peddler) compared with the traditional intervention (non-invasive ventilation) in elderly patients after Coronary Artery Bypass Grafting. **Methods and material:** Thirty elderly patients, in postoperative care of CABG, were organized into three groups: Group A – which performed the exercise in a passive exercise peddler; Group B – which performed motor physical therapy without using the exercise peddler; and Group C – with non-invasive ventilation. Considering a 5% significance level ($p < 0.05$) the Shapiro Wilk's test for normality analysis was performed and then a descriptive analysis of the sample was made. To analyze the variation of the results in each group before and after test Wilcoxon's test was performed. Finally, to analyze and to compare the three groups before and after test, the Kruskal Wallis test was performed. **Results:** The results showed a significant increase in Peak Flow values in the three groups (before and after test), a significant reduction of systolic blood pressure in group A, and increase of cardiac frequency and respiratory frequency in group B. In the analysis between groups, it was observed a significant reduction of diastolic blood pressure in group C. It is concluded that early mobilization and exercise, with or without the exercise peddler, can be safe and performed in elderly patients after CABG in the Intensive Care Unit (ICU). Careful use of positive pressure in the non-invasive ventilation is needed due the effects on blood pressure and cardiac debit.

PP41

MULTIDISCIPLINARY APPROACH TO REHABILITATION OF CARDIAC PATIENTS

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Background: In recent years high-tech methods of treating patients with cardiovascular diseases are being developed in cardiology. At the same time rehabilitation has become even more important. **Methods:** Specialists of Ivanovo State Medical Academy (ISMA), in collaboration with the State Research Centre for Preventive Medicine, have developed a program for the second stage of complex rehabilitation of patients with cardiovascular diseases. The program is designed for patients with acute coronary syndrome and/or percutaneous coronary intervention, its duration being 21 days. The basis of physical rehabilitation is composed of a complex of therapeutic exercises, training on cardiac simulators of «Kardiomed-700» series (Germany), dosed walking and climbing stairs. Depending on the functional class of stenocardia, trainings were conducted in two modes (moderate and semi-moderate). While implementing the cardiorehabilitation program a multidisciplinary approach was used. Previously such an approach was successfully applied in neurorehabilitation of patients with an ischemic stroke. A multidisciplinary team examined all patients on admission, on the 7th, the 14th and the 21st day in the following order: a cardiologist, a therapeutic physical trainer, a psychologist, a psychotherapist, a physiotherapist, a nutritionist. For each patient an individual rehabilitation program was developed as a result of the joint work of specialists of a multidisciplinary team. Testing and analysis of the

effectiveness of the program were conducted at the ISMA clinic. *Results:* At the end of the three-week program of cardiorehabilitation the following positive changes were revealed: a significant increase in patient tolerance to physical exercise (as measured by a six-minute walk), a decrease in the number of patients with clinical and subclinical depression (on the scale of HADS), additional antihypertensive effect, normalization of lipid profile, as well as an improved quality of life (according to SAQ questionnaire, SF-36). *Conclusion:* The work of a multidisciplinary team has solved many problems, such as coordination of individual specialists, joint development of a common plan, shorter stationary treatment period. The system is particularly effective in patients with polymorbidity, mutually aggravating disorders of vital activity, often leading to social exclusion of patients. In the future it seems necessary to develop a unified training program for multidisciplinary teams of specialists of primary vascular departments, as well as to develop uniform criteria for assessing the effectiveness of rehabilitation activities.

PP42

VASCULAR PERFUSION, BODY COMPOSITION AND MUSCLE STRENGTH IN CHRONIC KIDNEY DISEASE PATIENTS ON REGULAR HEMODIALYSIS PROGRAM

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Objective: This study aimed to identify the relationship between vascular perfusion, body composition and muscle strength in chronic kidney disease patients on regular hemodialysis program. *Method:* 27 patients were studied, 20 males and 7 females, with ages between 39 and 94 years old. The diameter and the flow of the draining vein were evaluated by ultrasound flow. A Hand Grip Test, Pinch Gauge Test and an anthropometric evaluation using a bioimpedance scale were done. *Results:* The average flow of the arterio-venous fistula was 1,340.096±304.615 ml/min and the diameter of the arterio-venous fistula was, on average, 0.57±0.06 mm. To check for significant differences between the variables the Spearman correlation coefficient test we used. There were statistically significant negative correlations between left handgrip strength and average flow ($r=-0.576$, $p=0.01$), pinch gauge test of the opposite side of the fistula and average flow ($r=-0.450$, $p=0.059$) and visceral fat and average flow ($r=-0.444$, $p=0.05$). Individuals with higher results in the pinch gauge test of the left finger showed lower flow, lower diameter and lower area of the draining vein. *Conclusions:* The results suggest that there may be a negative relationship between the flow of the arteriovenous fistula and muscle strength and body composition. Higher values of muscle strength correspond to lower flow values of the draining vein.

F. REHABILITATION AND NUTRITION

PP43

LIFE QUALITY CHANGES OF SENIORS AFTER DENTAL PROSTHETICS

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Introduction: In today's changing world, one of the biggest political challenges is the aging of the population. In Latvia, each fourth

inhabitant is at retirement age and the research about the seniors' living standards and the problems are not widespread, though these questions are important. *Aim:* To evaluate the quality of life of social care centre clients, who need dental plate. *Materials and Methods:* Statistical data of 2015 and a summary of questionnaire results of social care home clients. *Results:* Tooth loss affects mainly three important components of life quality: outer appearance, chewing function, which also includes swallowing function and communication. A human is characterized through the abstract verbal thinking level, but the problem is that speech is getting unclear. Clear, understandable language learning has a crucial influence on all mental activities, because the language is the first necessity, and it is one of the most important social realities in communication. The changes in the human appearance, facial mimic, poor chewing functions may limit food choice and may contribute to dysphagia. In Latvia removable dental plates are very popular, especially at the social care homes. After prosthetics, clients adapt their articulation apparatus for precise functioning or traditional clear sound pronunciation. The clients' life quality is getting worse, because the sound, which the client pronounces is only close to the traditional sound pronunciation, but, although, what a person says is clear, there is no ideal audio experience. Summarizing the statistics about the year 2015, in four social care centers 424 clients were questioned: 20% clients had total dental plates, 7% had partial dental plates. 19% of clients were using them, 1.6% were not using them, 3% were using them occasionally. *Conclusions:* The results show that speech forming parameters after dental prosthetics are not having a significant effect, because the clients have problems with eating, dental plates are pressing and are falling out from the mouth. Those clients who refuse wearing the plates develop swallowing problems. Social care centre clients do not have any information about the problem solutions, and they choose not to use dental plates or use them only occasionally.

PP44

DYSPHAGIA AS INITIAL COMPLAINT OF DIFFUSE IDIOPATHIC SKELETAL HYPEROSTOSIS (DISH) – A CASE STUDY

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Introduction: Diffuse idiopathic skeletal hyperostosis (DISH), also known as Forestier's disease, is a common disease, more prevalent in male population over 40 years old, characterized by entheses calcification and ossification. The most affected structure is the anterior longitudinal ligament. Dysphagia is the most common extra-skeletal clinical manifestation. Symptoms can arise from cervical osteophytes mechanical compression or from surrounding soft tissues secondary inflammation. *Case report:* The authors describe a case of a 50-year-old male presented to the Physical Medicine and Rehabilitation outpatient clinic, for sporadic episodes of dysphagia and laryngeal spasm during the past 3 years, with no identifiable etiology. He denied symptoms of radiculopathy. The physical examination showed oropharynx hyperemia, soft palate congestion, hyperactive pharyngeal reflex and limited cervical range of movement. The remaining neurological/ENT physical examination were unremarkable. The imaging study performed revealed abnormalities suggestive of DISH. He underwent several speech therapy sessions for swallowing rehabilitation with slight symptoms improvement, confirmed on video-fluoroscopy control. Referred to Neurosurgery that suggested surveillance Work-up: The patient performed exhaustive laboratory and imaging studies: videofluoroscopy which revealed the valleculae and piriform sinuses contrast accumulation associated with laryngeal penetration episodes; neck MRI which showed peri-laryngeal soft tissue swelling; thyroid ultrasound,

which identified a small lump of 7 mm; DaTSCAN was unremarkable; remaining serological and autoimmune study excluded any other etiology. Through the video-fluoroscopy observation of the cervical spine it was a notorious presence of anterior hyperostosis associated with esophageal distortion. Dorsal column radiograph showed calcification of the anterior longitudinal ligament of several adjacent vertebrae, while preserving intervertebral discs' height; these findings associated with the absence of ankylosis of apophyseal joints and sacroiliac joints sclerosis, supported the DISH diagnosis. *Conclusion:* Dysphagia is considered a common extra-skeletal clinical manifestation of DISH. However, concerning a dysphagia etiologic study, DISH is only responsible for up to about 10% of the cases. The authors conclude that DISH, often asymptomatic and discovered accidentally in imaging studies, should be recalled in patients over 40-years-of-age with unexplained dysphagia.

G. PSYCHIATRY AND FUNCTIONING

PP45

RELATIONSHIP BETWEEN DEPRESSIVE SYMPTOMS AND FUNCTIONING IN A LATVIAN COMMUNITY SAMPLE

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Introduction: Cross-sectional studies have found that depression is uniquely associated with limitations in well-being and functioning that are equal to, or greater than, those of chronic general medical conditions. The aim of this study was to analyse relationship between depressive symptoms and functioning in a Latvian community sample. *Materials and Methods:* Data were analyzed from 517 respondents (43.9% male), age 18–82 years (mean 40.58 years). After signing an informed consent form, the participants filled out the Latvian Clinical Personality Test (LCPT), WHODAS 2.0, and answered demographical questions. From the LCPT only 10 functioning scales and the Depression scale were used for further analysis. This study is part of a research program conducted in the framework of the National Research Programme (project No. 5.8.2.). *Results:* The results indicate that the Depression scale shows statistically significant expected correlations with all of the LCPT functioning scales: Energy level ($r_s=0.83, p<0.01$), Working capacity ($r_s=-0.64, p<0.01$), Memory functions ($r_s=0.63, p<0.01$), Physical well-being ($r_s=-0.61, p<0.01$), Sleep functions ($r_s=0.60, p<0.01$), Solving problems ($r_s=-0.56, p<0.01$), Respect and warmth in relationships ($r_s=-0.49, p<0.01$), Life Mastery & Time management ($r_s=-0.44, p<0.01$), Starting and sustaining a conversation ($r_s=-0.27, p<0.01$), Regulation of emotions/Anger control ($r_s=-0.26, p<0.01$). As for the WHODAS 2.0, all of the scales showed statistically significant correlations as well – Cognition ($r_s=-0.62, p<0.01$), Participation ($r_s=-0.62, p<0.01$), Getting along ($r_s=-0.56, p<0.01$), Life activities ($r_s=-0.51, p<0.01$), Self-care ($r_s=-0.45, p<0.01$) and Mobility ($r_s=-0.45, p<0.01$). *Conclusions:* The results show that depressive symptoms are extensively connected with difficulties in reported aspects of functioning. It would be beneficial to investigate this relationship further in clinical settings and perhaps taking into account different levels of severity of depression, as well as first time or recurrent episode of depression. *Keywords:* functioning, depression, participation, disability, well-being, health.

PP46

RELATIONSHIP BETWEEN PSYCHOTIC SYMPTOMS AND SOME ASPECTS OF FUNCTIONING

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Aim: The main goal of this study was to investigate the relationship between functioning and psychotic symptoms, because in recent years there has been an increasing interest about the role of how psychotic symptoms affect various areas of functioning. *Materials and Methods:* Data were analyzed from 412 respondents in a general sample (43% male), age 18–82 years (mean 40.49 years) and 27 respondents in a clinical group (56% male), age 18–73 (mean 39.67 years). The clinical group were selected based on the following criteria: currently in hospital and had been in hospital due to mental disorder; had a current psychotic episode and had had a psychotic episode earlier in life (based on M.I.N.I. interview). After signing an informed consent form, the participants filled out Latvian Clinical Personality Test (LCPT), WHODAS 2.0, M.I.N.I. interview and answered demographic questions. From the LCPT only 10 functioning scales and the Psychotic symptoms scale were used for further analysis. *Results:* The results indicated that the Psychotic symptoms scale showed statistically significant expected correlations with all of the LCPT functioning scales (Energy level, Sleep functions, Memory functions, Physical well-being, Regulation of emotions/Anger control, Working capacity, Solving problems, Starting and sustaining a conversation and Life Mastery & Time management) in the general sample. But different results were obtained in the clinical group, only three statistically significant relationships with LCPT Psychotic symptoms scale were obtained: Energy level ($r_s=0.64, p<0.01$), Memory functions ($r_s=-0.47, p<0.05$) and Physical well-being ($r_s=-0.43, p<0.05$). In the WHODAS 2.0, all of the scales showed statistically significant expected correlations in the general sample with: Cognition, Participation, Getting along, Life activities, Self-care and Mobility), but not in the clinical sample. *Conclusions:* Results imply that psychotic symptoms are associated with various difficulties in reported aspects of functioning. In the future it would be beneficial to investigate the causality of this relationship. *Keywords:* functioning, psychotic symptoms, general population, clinical group, well-being

PP47

RELATIONSHIP BETWEEN ANXIETY AND SOME ASPECTS OF FUNCTIONING IN A LATVIAN COMMUNITY SAMPLE

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Introduction: There has always been an interest about the way anxiety related disorders (phobias, OCD, PTSD, panic attacks) cause disturbance in human functioning and general well-being. The main goal of this study is to investigate the relationship between functioning and anxiety in a Latvian community sample. *Materi-*

als and Methods: Data were analyzed from 518 respondents in a community sample (43.8% male), aged 18–82 years (mean=40.63 years). After signing an informed consent form, the participants filled out the Latvian Clinical Personality Test (LCPT), WHODAS 2.0, and answered demographical questions. From the LCPT only 10 functioning scales and the Anxiety scale were used for further analysis. This study is part of a research program conducted in the framework of the National Research Programme (project No. 5.8.2.). *Results:* The results indicate that the Anxiety scale shows statistically significant expected correlations with all of the LCPT functioning scales: Solving problems ($rs=-0.69, p<0.01$), Energy level ($rs=0.62, p<0.01$), Memory functions ($rs=0.53, p<0.01$), Respect and warmth in relationships ($rs=-0.48, p<0.01$), Working capacity ($rs=-0.46, p<0.01$), Sleep functions ($rs=0.45, p<0.01$), Physical well-being ($rs=-0.45, p<0.01$), Starting and sustaining a conversation ($rs=-0.42, p<0.01$), Life Mastery & Time management ($rs=-0.32, p<0.01$), Regulation of emotions/Anger control ($rs=-0.31, p<0.01$). The same was true for the WHODAS 2.0 scales – Cognition ($rs=-0.55, p<0.01$), Participation ($rs=-0.49, p<0.01$), Getting along ($rs=-0.49, p<0.01$), Life activities ($rs=-0.39, p<0.01$), Self-care ($rs=-0.35, p<0.01$) and Mobility ($rs=-0.34, p<0.01$). *Conclusions:* Results imply that anxiety may be associated with various difficulties in reported aspects of functioning. In the future it would be beneficial to investigate this relationship in a clinical sample with different kinds of anxiety and also analysing the causality of this relationship. *Keywords:* functioning, anxiety, community sample.

PP48

RELATIONSHIP BETWEEN THE SUBSTANCE USE RELATED DISORDERS SCALE AND ASPECTS OF FUNCTIONING

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Aim: The purpose of this study was to evaluate the relationship of the alcohol and drug use subscales with the LCPT functioning scales in female and male groups. *Materials and Methods:* The sample consisted of 398 participants, age 18–82 years (mean=40.3 years), 58% female (mean age 40.99 years) and 42% male (mean age 40.25 years). After signing an informed consent form, the participants filled out the Latvian Clinical Personality Test (LCPT) and answered demographical questions. From the LCPT only 10 functioning scales and the preliminary version of ‘Substance use related disorders scale’ were used for further analysis. All the scales show high internal consistency (Cronbach’s alpha varied from 0.88 to 0.89). This study is part of a research program conducted in the framework of the National Research Programme (project No. 5.8.2.). *Results:* The Substance use related disorders scale shows a statistically significant positive correlation with 3 of 10 LCPT functioning scales: Energy level, Sleep functions, and Memory functions; and a negative association with Working capacity and Solving problems

in both the female and male groups ($p<0.05$). However, only the female group showed a statistically negative correlation between LCPT functioning scale Regulation of emotions/Anger control and scores of Substance use related disorders scale ($p<0.05$). *Conclusions:* The Substance use related disorders scale for the LCPT are developed, and their reliability, construct, criterion and concurrent validity are approved. The substance-use-related disorders are associated with various difficulties in reported aspects of functioning. Obtained results correspond with earlier findings documented in the literature and approve the criterion validity of the Substance use related disorders scale for the LCPT.

Keywords: functioning, psychometric properties, substance-related disorders.

PP49

RELATIONSHIP BETWEEN FUNCTIONING AND MENTAL DISORDERS IN A SAMPLE OF REHABILITATION PATIENTS

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Introduction: The research goal was to investigate how functioning is connected to symptoms of mental disorders in a group of patients who are undergoing a rehabilitation process and to compare some aspects of functioning between a clinical group (respondents in rehabilitation) and a non-clinical group. *Materials and Methods:* The sample consisted of a clinical group – adult patients from the rehabilitation centres ($n=67$, mean age 46.01, 57% male), and non-clinical group ($n=395$, mean age 39.09, 38% male). After signing an informed consent form, participants filled out the initial version of the Latvian Clinical Personality Test (LCPT), WHODAS 2.0. and demographic questions. This study is a part of the National Research Programme (No. 5.8.2.). *Results:* All of the mental disorder symptom scales in LCPT (Anxiety, Depression, Substance use related disorders, PTSD, Eating disorders, Psychotic symptoms and Somatoform disorders) show statistically significant correlation with functioning scales ($p<0.01$) and a statistically significant correlation with WHODAS 2.0. scales ($p<0.01$) in the clinical group. Also, the study results showed that there was a statistically significant difference in some of the LCPT functioning scales between the clinical and non-clinical groups ($p<0.01$). *Conclusions:* The symptoms of mental disorders are associated with various difficulties in reported aspects of functioning. There are differences in functioning aspects of LCPT between those respondents who are currently undergoing rehabilitation and those who are not currently in treatment. A combined analysis of psychopathology and functioning should be taken into account when developing and planning rehabilitation strategies for patients, thus promoting treatment efficacy.

Keywords: ICF, functioning, body functions, activity and participation, rehabilitation, mental disorders, clinical personality test.

Author index

A

Adomavičienė, Aušra 782
 Aleksey, Baklushin 785
 Almeida, Klebson 796
 Alves, Claudia 791
 Amaral, Carla 797
 Ancāns, Armands 777
 Andrich, Renzo 768
 Araújo, António 790, 794, 797
 Arkhipova, Svetlana 796
 Aroso, Pedro 790, 794, 797
 Aučnyienė, Ligita 786
 Azevedo, Paulo 797

B

Baklushina, Ekaterina 788
 Baklushina, Elena 788
 Baklushin, Aleksey 796
 Bambīte, Ulla 787
 Banura, Samir 781
 Baptista, Sofia 778
 Barreira, Elisabete 792
 Baško, Dina 787
 Becker, Frank 781
 Becker, Sonja 774
 Belova, Viktoria 788
 Bērants, Toms 794
 Bernardino, Bruna 797
 Bertule, Dace 770
 Berzina, Guna 787
 Bethge, Matthias 773
 Bhakta, Bipin 770
 Binkiewicz-Glinska, Anna 785
 Boman, Inga-Lill 770, 774
 Borg, Jörgen 770
 Borg, Kristian 767, 776, 784
 Bouças, Sofia Barbosa 771
 Brandes, Iris 774
 Briedis, Modris 794
 Broman, Lisbet 776, 784
 Budejijene, Austra 775
 Burrige, Jane 771
 Bursikova, Diana 788
 Bushnik, Tamara 781
 Būtėnaitė, Lina 794
 Butorac, Dražan 779
 Buurke, Jaap 771
 Buzinskaite, Jurgita 795

C

Cacurs, Ricards 777
 Carneiro, Saul Rassy 796
 Ceiciniece, Ieva 775
 Chamberlain, Anne 769, 781
 Christiaens, Myleen 769
 Cibule, Lolita 784, 794
 Civako, Jelena 786
 Coimbra, Paulo 790
 Collins, Tamsin 781
 Costa, Joana 777, 778, 780, 785, 790, 797
 Crisóstomo, Manuel 790
 Cunha, Marisa 792

D

Delgado, Bruno 795
 Dirgėlaitė, Viktorija 786
 Dovgalyuk, Yuriy 796
 Drakos, Georg 772
 Dubiņina, Evita 784
 Dudin, MG 783
 Duhovska, Jana 788, 793
 Dunyakov, Oleg 789
 Du, Xiaoxia 781

E

Elessi, Khamis 781
 Enthoven, Paul 789

Ereline, Jaan 786

F

Fernandes, Teresa 791
 Ferreira, Dulce 795
 Ferreira, João 790
 Ferreira, Paulo 790
 Feys, Peter 771
 Figueiredo, Pedro 780, 790
 Fraga, Marta 790

G

Gallagher, Justin 770
 Gapeyeva, Helena 786
 Garcia, Filipa 790
 Garcia, Sérgio 792
 Gautheron, Vincent 769
 Geidane, Santa 777
 Gibavičiūtė, Kristina 779
 Gillanders, David 779
 Giniūnaitė, Ona 794
 Golik, Voldemir 768
 Gómez-Benito, Juana 798
 Greitāne, Andra 768, 775
 Greitans, Modris 777
 Gutenbrunner, Christoph 767

H

Hedell, Lasse 794
 Hermanis, Atis 777
 Hoff, Marie 777
 Hofmane, Anete 798
 Hohlova, Anna 784
 Hughes, Ann-Marie 771
 Høyer, Ellen 782

I

Ivanova, Anna 788
 Ivanova, Galnia 768

J

Jahnsen, Reidun 782
 Jamontaitė, Ieva Eglė 779
 Janonienė, Dainė 786
 Jansen, Katrien 769
 Jėgere, Lauma 799
 Jėkabsonė, Ieva 794
 Juocevičius, Alvydas 779, 782
 Jurjāne, Aja 799
 Jusinska, Olga 784
 Jušinska, Olga 784

K

Kadetoff, Diana 767
 Kamaeva, Olga 773
 Kaposte, Agnese 784
 Karimi, Mohammad Taghi 778
 Kārklīņa, Agnese 787
 Karpuk, Natalya 785, 796
 Kasatkina, Anna 789
 Kaukėnaitė, Brigita 794
 Keeling, David 770
 Keren, Ofer 781
 Khokhlova, Anastasia 789
 Kiezbak, Wojciech 780
 Kiekens, Charlotte 769
 Kiukucane, Evita 787
 Klamroth-Marganska, Verena 771
 Klatenberg, Ilze 784
 Kleineke, Vera 774
 Knež, Ivana Božić 779
 Knež, Vladimir 779
 Koļesņikova, Jelena 775, 798, 799
 Kowalski, Ireneusz Marek 780
 Krastīņa, Kristīne 797
 Kurchaninova, Marina 789
 Körner, Mirjam 767, 774

L

Lamers, Ilse 771
 Langhammer, Birgitta 781
 Lanie, Farewik 778

Lattre, Capucine de 769
 Lemos, Pedro 777
 Levesley, Martin 770
 Ljevin, Jelena 798, 799
 Lukmann, Aet 787
 Lundgren-Nilsson, Åsa 781
 Lutsky, Lena 768
 Feys, Peter 771
 Figueiredo, Pedro 780, 790
 Fraga, Marta 790

M

Madona, Modu 780
 Majore-Dūšele, Indra 793
 Makower, Sophie 770
 Mantineo, Matias 778
 Marques, Alexandre 794
 Mārtinsonē, Kristīne 775, 788, 798, 799
 McCulloch, Amy 781
 Melin, Eva 784
 Mendes, Eugénia 791, 792, 795, 796, 797
 Meyer, Thorsten 774
 Mihejeva, Illa 786, 787
 Mikhaylovskaya, Tatyana 796
 Mishina, Irina 796
 Mitt, Paulin 786
 Molander, Carl 767
 Morgado, António 778
 Murphy, Margit Alt 771
 Müller, Christian 774

N

Nagibina, Anastasia 789
 Negrini, Stefano 769, 783
 Ņestereca, Jūlija 784
 Nollet, Frans 767
 Noronha, Bruno 795
 Novo, André 791, 792, 795, 796, 797
 Nugraha, Boya 767
 Nulle, Anda 787

O

O'Connor, Rory 770, 772
 Oliveira, Jorge 778
 Oliveira, Maria Filomena 795
 Oliveira, Sandra 790
 Osleja, Austra 798
 Ozoliņa, Zane 798

P

Paipare, Mirdza 788, 793
 Palmcrantz, Susanne 770
 Panchenko, Maria 781
 Pēča, Kaiva 799
 Perepjolkina, Viktorija 775, 798, 799
 Persson, Ann-Christine 774
 Petersone, Marta 787
 Pickering, Dawn 772
 Pietilä-Holmner, Elisabeth 789
 Pimentel, Manuela 792
 Pinchuk, DJ 783
 Pinheiro, João Páscoa 777, 778, 780, 785, 790
 Pires, Jennifer 777, 785, 790
 Plantin, Jeanette 770
 Popova, Evgeniya 785
 Prange, Gerdienke 771
 Preto, Leonel 791, 792, 795, 796, 797
 Protasiewicz-Faldowska, Halina 780
 Pukhova, Lidia 789
 Pääsuke, Mati 786

R

Razanauskaite, Vilma 775
 Reis, Flávio 778
 Resteghini, Carol 771
 Riņķe, Ilze 784
 Rodgers, Helen 771
 Roebroek, Marij 769
 Romsland, Grace Inga 781
 Rovner, Graciela 768, 779
 Rozentāle, Baiba 784
 Rukhadze, Manana 780

Rundel, Manfred 774
 Räder, Sara 777, 780, 785, 790
 Rönnelid, Johan 784

S

Saljoughian, Parastoo 778
 Schipper, Karen 772
 Schult, Marie-Louise 767
 Simões, Vitor 790, 797
 Šinka, Marina 787
 Sitkare, Valentina 784
 Sivan, Manoj 770
 Siwik, Piotr 780
 Sjölund, Bengt 768
 Skattebu, Eli Dørvsesodgård 777
 Skestere, Inga 770
 Slivovskaja, Ieva 795
 Sohrabian, Azita 784
 Sokolow, Michal 785
 Soloveja, Beata 793
 Stamer, Maren 774
 Stanghelle, Johan K 781, 782
 Šteina, Anna 793
 Stenberg, Gunilla 789
 Stepens, Ainārs 775, 798, 799
 Strand, Liv Inger 782
 Stunžane, Jelena 784
 Stålnacke, Britt-Marie 789
 Sukhanova, Darya 796
 Sunnerhagen, Katharina Stibrant 776, 781, 787
 Šuriņa, Sanita 788
 Sällström, Susanne 781

T

Tai, Chen-Jei 791
 Tang, You Jen 791
 Teixeira-Lemos, Edite 778
 Tiffreau, Vincent 769
 Timmermans, Annick 771
 Toropkina, Olga 784
 Treger, Iuly 768, 773
 Trusina, Anna 786
 Tumaševica, Jekaterina 784

U

Ūdre, Zane 784, 794
 Upmale, Anda 793
 Uriko, Anne 773

V

Vāciete, Ilze 797
 Vardeberg, Kjersti 777
 Vaz, Josiana 796
 Veckiene, Nijole 767, 775
 Veiros, Iolanda 780, 785
 Venskaitis, Raimundas 779
 Vētra, Aivars 768, 784, 786, 787, 797
 Vētra, Anita 770, 784, 787
 Viskontaitė, Asta 794
 Vreede, Katarina 776, 784
 Vuillerot, Carole 769
 Wall, Anneli 770
 Wanying, Deng 781
 Wasicka, Beata 785
 Werhagen, Lars 776
 Wifstrand, Linn 779

Y

Yastrebeeva, Irina 788
 Yelnik, Alain 769

Z

Zaborowska-Sapeta, Katarzyna 780
 Zakajeva, Anna 784
 Zeisberger, Maren 774
 Zhang, Tong 781
 Zhidchenko, Yury 782
 Zimmermann, Linda 774

Ö

Östlund, Gunilla 776