ABSTRACTBOOK DCRM 2023

In this abstractbook the following abstracts can be found:

- Keynote speakers
- Free paper sessions
- Workshops & mini-symposia
- Debate & PhD Award
- Posters & innovation Posters

Programme

The official language of the plenary programme of the congress is English. **The debate on friday and m*ost parallel sessions will be held in Dutch.***

Thursday 9 November

09.00 – 10.00	Registration of the participants
10.00 – 10.15 **10.15 – 10.45** **10.45 – 11.15** **11.15 – 11.45**	Opening Congress: **dr. Nicole Voet** Keynote lecture: Jan Willem Gorter & Alicia Lucardie Keynote lecture: Sander Hilbrink Keynote lecture: Stephanie Jansen-Kosterink
11.45 – 12.00	**Pitch presentations of the 10 Best Posters (plenary)**
12.00 – 13.10 **12.15 – 12.45**	• **Poster walk** and exhibition: Networking Lunch Break • **Lunchsession sponsor**
13.10 – 15.40	**Parallel Session A & B; Extra long workshops (2,5 hours)**
13.10 - 14.10	**Parallel Session A: Free paper sessions**
14.15 – 15.45	**Parallel Session B: Workshops and mini-symposia**
15.45 – 16.25	Poster walk and exhibition: networking break
16.25 – 17.55	***General Assembly VRA***
18.00 – 19.30	Free time
17.55 – 18.45	• *Informal reception for aios (residents). For aios only!*
19.30– 00.00	***Dinner and music entertainment at De Kaserne Den Bosch***

Friday 10 november

08.30 – 09.00	Registration of the participants
09.00 – 10.30	**Parallel Session C: Workshops and mini-symposia**
10.30 – 11.15	Coffee break and visiting commercial exhibition
11.15 – 12.15	**Parallel Session D: Debate and PhD thesis session** D1. PhD thesis session: presentations of the best PhD theses in the Netherlands D2. Debate
12.15 – 13.25 **12.30 – 13.00**	• **Poster walk** and exhibition: Networking Lunch Break

	• **Lunchsession** sponsor
13.25 – 14.55	**Parallel Session E: Workshops and mini-symposia**
14.55 – 15.35	Poster walk and exhibition: Networking Break including Speeddating with NSRM committees.
15.35 – 15.45	**Awarding best PhD thesis, best presentation and best poster**
15.45 – 16.15	Keynote lecture: Alice Schippers
16.15 – 16.45	Keynote lecture: Jane Cramm
16.50 – 17.00	Closing of the DCRM 2023

Keynotes

- Prof. Jan Willem Gorter & Alicia Lucardie
- Sander Hilberink
- Stephanie Jansen-Kosterink PhD
- Prof. Alice Schippers
- Prof. Jane Cramm

Prof. Jan Willem Gorter & Alicia Lucardie
Rehabilitation for all – are we at a tipping point?

As a society of rehabilitation professionals, we say that we are committed to the principles of equity, diversity, inclusion, and social justice in all that we do. At least, that is what we think we should be doing. But do we actually do this? And if we do this, are we acting at the individual (micro) level, the community (meso) level, or at the societal (macro) level? While nobody disagrees on the theme "rehabilitation for all" of this year's DCRM congress, the reality is that there are disparities in opportunities and outcomes for diverse communities, in the Netherlands and globally. It also should be acknowledged that these disparities are rooted in historical and contemporary injustices and disadvantages.

In the opening keynote of the 2023 DCRM congress, Alicia and Jan Willem, two rehabilitation physicians and VRA members with diverse experiences, will seek a shared understanding of the issue of equity and equality, and will search for common ground and action. We will explore what this means for our clinical practice, research, leadership, and advocacy activities. It is time that we become (self)aware of existing inequities and inequalities, and the importance of thinking and talking about our values, individually and collectively. Good clinical practice needs to be coupled with effective self-advocacy as well as advocacy. We hope that increased awareness and knowledge will benefit all people.

Professor Jan Willem Gorter, MD, PhD, is a Pediatric Physiatrist and Head of Pediatric Rehabilitation at UMC Utrecht (locations Wilhelmina Children's Hospital and Princess Máxima Center for Pediatric Oncology), Professor of Pediatrics (part-time) and CanChild Scientist at McMaster University, Hamilton, Ontario, Canada. He also is the Chief-Editor of the journal CHILD: Care, Health and Development. Jan Willem has a special interest in the health, development and wellbeing of children and youth with disabilities. His work focuses on the six F-Words for child development: family, function, fitness, fun, friends and future. With his team, Jan Willem aims to optimize children's participation in our society, increase their autonomy and facilitate their transition into adulthood. To make sure youth with disabilities are on a healthy trajectory, Jan Willem's program of research is guided by the 'Lifecourse Health Development' model in which the input of children and young people themselves and their parents is crucial. Jan Willem's mission is to promote participation for all. He hopes to inspire others to move beyond the individual person and to look at the 'bigger picture' with the goal to create a more inclusive society where everyone feels that they belong and that they matter.

Alicia Lucardie, MD MSc, is a Rehabilitation Specialist and currently studies Global Health Policy at the London School of Hygiene and Medicine (LSHTM) in the UK. She is also part of the Dutch

Transcultural Rehabilitation Working Group. Alicia holds degrees in both Medicine and Clinical Research (MD MSc) and Health Sciences (BSc), and has previously studied Arabic language and culture. Before her specialisation in rehabilitation, Alicia worked as a supervision doctor and project manager for cervical cancer screening in Indonesia. Alicia's key interest lies at the nexus of global health and rehabilitation. Having grown up in South Africa, Indonesia and the Netherlands, her mission is clear: to break down barriers, embrace diversity and unearth tangible, lasting solutions to pressing healthcare matters. She hopes to inspire others to contribute to inclusive and equitable rehabilitation for all, challenge conventions, and importantly, to never stop asking questions.

Sander Hilberink

Equality within rehabilitation medicine: new roles and challenges

Equality and Disability is not an evident combination. Anyone who has seen the Netflix documentary 'Crip Camp: A Disability Revolution' understands it is emotionally loaded and fought for, against prevailing standards. Crip Camp shows the seed that would eventually blossom into the United Nations Convention on the Rights of Persons with Disabilities. We are now 50 years on, but equality for citizens with disabilities is still under challenge. This challenge comprises many areas: Finances and employment, cultural, sexual, family formation, parenthood. Besides this inequality in citizenship, citizens with disabilities have earlier and more health problems and lower life expectancy. Much of the above takes place out of sight of the rehabilitation physician, both literally and figuratively. Therefore, this contribution will address how rehabilitation specialists should use their expertise more extensively. Not only outside the departmental walls of the outpatient clinic, but also outside the walls of the hospital and rehabilitation centre. Not only within healthcare settings, but also in the public domain and debate. The rehabilitation professional is pre-eminently the expert on Equality and living with disabilities. The profession will have to reach out more to live up to that expert role and seize their unique opportunity to promote the Equality of citizens with disabilities.

Sander Hilbrink (1974) is Applied Research Professor Ageing with lifelong disabilities at Research Centre Innovations in Care of Rotterdam University of Applied Sciences. He graduated as a psychologist from Radboud University Nijmegen in 2000 and obtained his PhD with the thesis 'Smoking cessation support for COPD patients in general practice' in 2013. His research group focuses on ageing with lifelong disabilities, from the perspectives of citizenship and different stages of life. Key areas of his research are ageing with disabilities and citizenship; sexuality and support; and pregnancy and parenthood with disabilities.

Stefanie Jansen-Kosterink

Equality and inclusivity in rehabilitation care: How to create impact by means of personalised health technology?

In rehabilitation care there is a natural tendency to use technology. Especially when patients are disabled and the technology helps the patient to regain independency. A wide variety of technologies are available in rehabilitation care but the uptake is still disappointing. In this keynote I will address my solutions to create impact by means of personalised health technology and to achieve equality and inclusivity in rehabilitation care. First it is important to involve end-users in all phases of research; discovery, development, demonstration and deployment. The continues involvement of end-users (patients and/or healthcare professionals) is crucial to ensure a perfect fit between the user, the health context and the technology and go beyond standard co-creation activities. Second it is important to broaden our view towards the evaluation of personalised health technology in rehabilitation care. Off course the clinical perspective is importance to address, but also the user and societal perspective should be part of an evaluation. Traditional study designs do not fit with this view on evaluation and therefore we have to search and gain experience with non-traditional study designs, such as the cohort multiple Randomized Controlled Trails, the Micro-randomized trials and the Stepped wedge cluster randomised trials. This keynote will end with the relatively unknown Social Return on Investment (SROI) method to assess the societal impact of a innovation and the need to use this method to force us to make choices about which innovations will be continued and scaled up given the limited resources and capacity in rehabilitation care.

Stephanie Jansen-Kosterink, PhD (female) has a background in human movement sciences (VU University Amsterdam). Stephanie joined Roessingh Research and Development (Impact lab for personalised health technology) in Enschede in October 2008 and her work mainly focusses on the clinical and societal evaluation of personalised health technology. End 2014 she successfully defended her PhD thesis: "The added value of telemedicine service for physical rehabilitation". As senior researcher she works (and worked) on various European and national projects (e.g., including FP7-MyoTel, FP7-CLEAR, FP7-PERSSILAA, H20202-Back-Up and H2020-RE-SAMPLE). In these projects, she was responsible for the overall clinical evaluation of the developed eHealth service with end-users in daily clinical practice. Stephanie currently works as senior researcher and is as a board member of the regional ethical committee an expert in ethical guidelines for eHealth evaluation in a clinical setting. In 2015 Stephanie passed her GCP-WMO exam and since 2017 she is qualified to use the SROI methods to assess the societal impact of innovations, such as personalised health technology and eHealth service.

Prof. Alice Schippers

Centering the Margins: perspectives on stigma, discrimination and epistemic injustice

Much of the equity, diversity and inclusion debate has focused upon practices and provision for marginalized people, such as people with disabilities. Yet it is evident that the population of persons and in some cases whole communities who have been denied access to appropriate facilities, such as education and employment, is much wider and more complex. The relationships that exist between poverty, class, gender and exclusion from adequate services

are evident in many countries, and each of these factors interacts with others to perpetuate stigma, discrimination and exclusion.

In this keynote I will focus on forms of discrimination and exclusion, based on stigma and implicit norms, and consequently marginalisation. This in turn leads to what is called epistemic injustice, which refers to situations where people are not given the recognition they deserve because they are not valued in their capacity as subjects of knowledge and epistemic agents.

Drawing on experiences of people who have themselves been the subjects of marginalisation, I will emphasise the oft heard mantra of "nothing about us without us" as an important consideration for policy makers, researchers and professionals who express a commitment to produce more equitable and inclusive practices. To illustrate this, I will turn towards examples of collaborative and inclusive research.

Alice Schippers is professor of Disability Studies, by special appointment on behalf of Disability Studies in Nederland, at the University of Humanistic Studies in Utrecht, the Netherlands. From an early age she is interested in living with disabilities, as natural part of her life. As a teenager, started with a voluntary job in the disability field and from that experience onwards, she acted in several roles in this field: As a researcher and leader, as a volunteer and activist, as a mother and friend. From mid 1990's, her research focus is on (Family) Quality of Life, Social Inclusion and Inclusive Research. She is Fellow of IASSIDD (International Association for the Scientific Study of Intellectual and Developmental Disabilities), and currently as Vice-President. She is associate editor with two international journals and also active in several (inter)national committees.

Prof. Jane Cramm

Delivering person-centred care: a challenge for rehabilitation medicine

Person-centred care means that focus shifts from symptom/disease management to the well-being needs and expectations of individuals and communities. By recognising these needs and expectations it is possible to better understand the impacts of chronic diseases disabilities and the potential limitations that come with it, and thereby determine the types of care and support that individuals require. Pinpointing how person-centred care affects patients as to their ability to maintain well-being, and which dimensions of well-being are compromised, will help determine the changes needed to protect their well-being.

Building on top of existing healthcare systems is not enough; a comprehensive approach is needed to truly build support in healthcare (including rehabilitation) settings for the achievement of overall well-being. Implementing such a comprehensive approach is, however, often difficult, costing both time and money which are not always available. But even something seemingly small as putting patients at the centre of their own healthcare, is an approach that is not widely practiced in reality. Healthcare systems and professionals struggle with the delivery and organization of person-centred care leading to wide variations.

This struggle is especially evident among the most vulnerable groups in society. It is a great challenge for rehabilitation medicine to provide vulnerable patients with care that actually protects their well-being. It's about how can rehabilitation organizations and doctors really make a difference for vulnerable groups, but also about the question how it can be ensured that vulnerable groups are referred to rehabilitation services.

Healthcare organisations who are successful in delivering person-centred and taking the context of patients and professionals into account, do show improved outcomes. Evidence indeed has shown that higher levels of person-centred care results in more favourable organisational, professionals and patient outcomes, which are promising findings and give us direction on how to move forward in care delivery.

Jane Murray Cramm is a Full Professor and vice-dean at the Erasmus School of Health Policy & Management, Erasmus University Rotterdam, in the Netherlands. Jane holds a bachelor's degree in health sciences, a master's degree in health care management and a doctorate in sociomedical sciences from Erasmus University. Research on person centred care and diversity has been a core component of her career. She has been a principal investigator in studies evaluating several large-scale complex intervention programs. Jane has published over a 150 peer reviewed articles.

Parallel Session A: Freepapers

Freepaper session A3: Top 4 orals

O01: The development, implementation, and pilot-testing of a patient decision aid regarding terminal devices for people with upper limb absence: the PDA-TULA - *Nienke Kerver*
O02: Course of recovery of respiratory muscle strength and associations with physical functioning: a prospective cohort study among critical illness survivors - *Mel Major*
O03: Clinical prediction model for interdisciplinary biopsychosocial rehabilitation in osteoarthritis patients - *Sophie Vervullens*
O04: Relationships between physical fitness and cardiovascular and clinical manifestations in children with Marfan syndrome and Loeys-Dietz syndrome - *Jessica Warnink-kavelaars*

During the congress a delegation of the scientific committee awards the Best Oral prize. The awarding of this prize is based on the following criteria (scientific quality; quality of the content of the abstract; clinical relevance;innovative) and the quality of the presentation. The prize will be awarded to a early career researcher (resident, rehabilitation physician for max. 3 years or PhD candidate / PhD graduated max. 3 years ago)

Freepaper session A4: Innovation

O05: Care4carer: Support for caregivers of stroke survivors - *Inge Lim*
O06: 'Academische Werkplaats HOMELAND' – A workplace to improve devices for offloading the neuropathic foot by stakeholder collaboration from patients to academia - *Jaap Van Netten*
O07: BornToGetThere: implementation of uniform care for infants at high risk of cerebral palsy - *Tjitske Hielkema*
O08: Implementation of caregiver involvement by means of caregiver-mediated exercises in stroke rehabilitation at Roessingh, Centre for Rehabilitation - *René Brunsveld*

Freepaper session A5: Fitness - moving - mobility

O09: Evaluation of a 12-week personalized aerobic and resistance exercise module as part of the rehabilitation of patients with different diagnoses - *Karin Gerrits*
O10: Ommetje, a mobile application to support physical activity, is it inclusive enough for patients in rehabilitation treatment? - *Siham Icho*
O11: Resistance exercise training counteracts the adverse effects of androgen deprivation therapy on body composition and physical capacity in prostate cancer patients - *Lisanne Houben*
O12: Empowering patients towards sustainable physical activity; development of a person-centered intervention integrating behavioral change science and design research - *Arlette Hesselink*

Freepaper session A6: Neurodegenerative - neuromuscular diseases

O13: Usability of a mobile health application to support home-based aerobic exercise in neuromuscular diseases - *Tim Veneman*
O14: What and how do families communicate about ALS? A qualitative exploration of parents'

and children's perceptions - *Marion Sommers-spijkerman*
O15: Effect of stiffness-optimized ankle-foot orthoses on gait stability in people with neuromuscular diseases and bilateral calf muscle weakness - Wessel Van Der Steen
O16: Optimizing protocol selection for cardiopulmonary exercise testing in slowly progressive neuromuscular diseases - *Sander Oorschot*

Freepapersession A7: Brain injury & stroke - other
O17: PROMIS-29 and PROMIS cognition function: outcomes 1 year after stroke - *Henk Arwert*
O18: A national consensus-based document on current practice with preferred assessments, interventions, and psychoeducation for young people with acquired brain injury across Dutch rehabilitation centers - *Florian Allonsius*
O19: Exploring acquired childhood aphasia: a national longitudinal study - *Femke Nouwens*
O20: Reducing the physiological and biomechanical demands of manual wheelchair propulsion with different assistance-levels of a pushrim-activated power-assisted wheel on an instrumented ergometer with able-bodied participants - *Jelmer Braaksma*

Freepapersession A8: Spinal cord & peripheral nerve injury - others
O21: Validity and reliability of the Dutch translation of the OPUS' Client Satisfaction with Device module in chronic hand orthotic users - *Tanja Oud*
O22: Comparison between USER-Participation and PROMIS-APS and PROMIS-SPS to evaluate participation in a rehabilitation population: a cross-sectional multicentre study - *Bianca Mourits*
O23: Development and reliability testing of a qualitative observational rating system for individuals with brachial plexus injury performing Functional Capacity Evaluation tests. - *Tallie Van Der Laan*
O24: Participation and quality of life among significant others of individuals with spinal cord injury: Course and predictors - *Eline Scholten*

O01

The development, implementation, and pilot-testing of a patient decision aid regarding terminal devices for people with upper limb absence: the PDA-TULA

Kerver N[1], Boerema L[1], Brouwers M[2], van der Sluis C[1], van Twillert S[1]
[1]Umcg, [2]de Hoogstraat Rehabilitation

Introduction: High abandonment rates of upper limb prostheses (ULPs) underline the need for personalized selection of ULPs.
Objective: To develop, implement, and pilot-test a patient decision aid regarding terminal devices (PDA-TULA).
Patients: Adults with upper limb absence.
Added value for patients: Support in well-informed ULP-selection.
Methods: The PDA-TULA was developed through a systematic co-creation process involving patients, clinicians, researchers, and implementation- and ICT-experts. Stakeholder needs were determined through literature meta-synthesis, focus groups, and surveys. Terminal device information was collected and refined in a nationwide meeting. The PDA-TULA was drafted, tested, and improved based on end-users feedback. Based on barrier/facilitator analyses with stakeholders, tailored implementation strategies were selected and applied. The PDA-TULA was pilot-tested nationwide.
Results: the PDA-TULA informs patients about available TD options, prompts consideration of preferences, and allows comparison of indicated preferences with available options. Tailored implementation strategies, such as the integration into the digital working process of clinicians and the use of local 'Knowledge Brokers', facilitated the successful implementation (outreach rate 85,3%). Patients indicated the PDA-TULA helped them to determine what is important for them regarding ULPs. Clinicians indicated the PDA-TULA supported the shared-decision making in ULP-selection.
Discussion and Conclusions: Both patients and clinicians indicated the PDA-TULA helped them selecting an ULP. Results underline the importance of co-creation in developing and implementing a product to align end-user needs.
Clinical Message: the PDA-TULA is a valuable tool for clinicians and patients to support well-informed and personalized ULP-choice. Currently, the PDA-TULA is used nationwide for ULP-selection in the Netherlands.

O02

COURSE OF RECOVERY OF RESPIRATORY MUSCLE STRENGTH AND ASSOCIATIONS WITH PHYSICAL FUNCTIONING: A PROSPECTIVE COHORT STUDY AMONG CRITICAL ILLNESS SURVIVORS

Major M[1,2,3,4], van Egmond M[1,2,4], Dettling-Ihnenfeldt D[3], Ramaekers S[1,2,3,4], Engelbert R[1,2,3,4], Van der Schaaf M[2,3,4]
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Mechanical ventilation affects respiratory muscles, little is known about long-term recovery and potential associations of respiratory muscle weakness(RMW) with physical functioning.

Objective:to investigate recovery of RMW and its associations with functional outcomes in patients mechanically ventilated ≥ 48 hours.

Methods:Primary outcomes (measured 3x),were maximal inspiratory and expiratory pressures(MIP/MEP).Secondary outcomes were functional exercise capacity(FEC) and handgrip strength(HGS).Longitudinal changes in outcomes and associations between MIP/MEP, predictor variables and secondary outcomes were investigated through linear mixed models.
Results:Fifty-nine patients (male: 64%, median age[IQR]: 62 [53-66]) with a median (IQR) ICU and hospital length of stay (LOS) of 11(8-21) and 35(21-52) days,participated.All outcomes were below predicted values at hospital discharge (MIP: 68.4%, MEP 76.0%, HGS 73.3% and FEC 54.8 steps/2m),but significant 6-month recovery was noted.Older age was associated with decreased MIP and FEC and longer hospital LOS with decreased MIP, FEC and HGS.Significant longitudinal associations were found between MIP/MEP and FEC and HGS.

This study is the first to show persistent RMW at hospital discharge in mechanically ventilated patients,observing near full recovery at 6 months.Older patients and patients with longer hospital LOS are likely to have worse outcomes and the associations we found between RMW and other physical outcomes,warrant the need for thorough and continued assessment of respiratory muscle strength in deconditioned patients discharged from ICU.The potential of targeted training extending beyond ICU and hospital discharge should be further explored.

RMW might explain prolonged physical problems after ICU and hospital discharge - further studies should investigate pathophysiological mechanisms surrounding RMW, ICU-AW and exercise capacity.

O03

Clinical prediction model for interdisciplinary biopsychosocial rehabilitation in osteoarthritis patients

Vervullens S[1,2,3], Breugelmans L[2,4], Beckers L[2], Van Kuijk S[5], van Hooff M[6,7], Winkens B[8], Smeets R[2,3,9]

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INTRODUCTION: Osteoarthritis (OA) is a heterogenous condition, in which different subgroups exist. Individualized interdisciplinary multimodal pain treatments (IMPT) have resulted in promising results, but a clinical outcome prediction model is lacking.

OBJECTIVE: Develop and internally validate a clinical prediction model based on identified predictors for IMPT in OA patients.

METHODS: Chronic OA patients were included and underwent a 10-week IMPT program at Center for Integral Rehabilitation during January 2019 – January 2022. Treatment success was defined by minimal decrease from baseline of 9 points on the Pain Disability Index. Candidate predictors were selected by experts and literature review. Backward logistic regression and bootstrap validation were performed to develop and internally validate the model.

RESULTS: 599 OA patients were included, of which 298 had treatment success. Thirty-four variables were identified as possible predictors for good IMPT outcome. Age, gender, number of pain locations, baseline disability, maximal pain severity, pain medication and alcohol use, work ability, illness perceptions about timeline, consequences, identity and treatment control, pain catastrophizing and self-efficacy were found as predictors for treatment success. The internally validated model has discriminative power of 0.71 and sensitivity of 0.99 taking a cut-off point of only 20% for treatment success.

CONCLUSION: A specific clinical prediction model with acceptable discriminative power and very high sensitivity taking a cut-off point of 20% for treatment success for good outcome of IMPT in OA patients is reported. Next, this model must be externally validated before it can be used to develop a clinically useful decision tool.

O04

Relationships between physical fitness and cardiovascular and clinical manifestations in children with Marfan syndrome and Loeys-Dietz syndrome

Warnink-kavelaars J[1], de Koning L[1,2], Buizer A[1,3,4], Wijninga L[1], Rombaut L[5], Muino Mosquera L[6], van der Hulst A[7], Engelbert R[1,2,4]
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Introduction-Objective
Children with Heritable Connective Tissue Disorders (HCTD) report increased fatigue, pain and disability. This multicenter cross-sectional cohort study investigated relationships between physical fitness, cardiovascular and clinical manifestations in children with HCTD.
Patients
This study included 42 children, aged 6-18 years (mean(SD) 11.5(3.7)) with Marfan syndrome (MFS, n=36) and Loeys-Dietz syndrome (LDS, n=6).
Methods
Physical fitness was assessed in terms of cardiovascular endurance using Fitkids Treadmill Test (FTT). Cardiovascular parameters were measured with echocardiography. The systemic Ghent score, length, weight, lens luxation, surgery and medication were obtained during physical examination. Pain intensity over the last week was evaluated by visual-analog-scale. Fatigue was evaluated by Patient Reported Outcomes Measurement Information System (PROMIS) Fatigue-10a-Pediatric-v2.0-short-form and by Fatigue-10a-Parent-Proxy-v2.0-short-form. Uni- and multivariate lineair analyses were performed to explore associations between physical fitness and cardiovascular and clinical independent variables.
Results
Both the HCTD-group and the MFS-subgroup scored significantly below average on time to exhaustion on the FTT (Z-score, mean(SD)-3.1(2.9);-3.0(3.0), respectively) compared to normative data. Negative associations were found between FTT and fatigue, pain, body mass index, and aortic surgery. Multivariate regression analysis indicated that pediatric reported fatigue explained 49% of the variance in FTT scores (r2= 0.49 F(1,15)= 16,3, p= 0.01). Cardiovascular and clinical manifestations did not significantly contribute to physical fitness.
Discussion-Conclusions
This study shows that physical fitness is negatively associated with pediatric-reported fatigue while cardiovascular and clinical manifestations did not significantly contribute.
Clinical message
Understanding these relationships provide a basis for developing tailored interventions to improve physical fitness in children with HCTD.

O05

Care4carer: Support for caregivers of stroke survivors

Lim I[1], Boers S[1], Schepers V[1], van Heugten C[2], Heijmans E[1], Schoonenberg M[3], Walton-Vosse A[4], Siebelink Y[4], Visser-Meily A[1]
[1]UMC Utrecht, Kenniscentrum Revalidatiegeneeskunde Utrecht, [2]Maastricht University, Expertisecentrum Hersenletsel Limburg, [3]Adelantezorggroep, [4]expert by experience at home
Topic: Support for caregivers of stroke survivors
Relevance: Many caregivers of stroke survivors experience high levels of burden. This burden can be physical, psychological, financial, related to work, family and more. Despite many research on burden and the risk factors, caregivers still experience lack of recognition and help to decrease burden. If caregivers receive help, this is mostly focused on education, supporting and counseling.
Purpose: Our purpose is to enable caregivers to recognize their needs and find the right help. Based on literature review, results of the Care4carer trial, input of caregivers, health workers we develop 1) an infographic to make clear what kind of support exists and how to obtain this support in the Netherlands, 2) a decision aid, based on the caregiver strain index to get insight in what kind of support one needs, 3) short video clips with interviews with three caregivers and two social workers, they share their experience with burden and tell about the support they found helpful.

Current status: At this moment the infographic is developed, the test is under development and producing the clips are planned for the end of June 2023. All this information will be placed on the website of Hersenletsel.nl, the patient association for stroke survivors and their caregivers.

Plan of action: In the future we would like to optimize the content of the website by making an easy- to- use decision aid.

O06

‘Academische Werkplaats HOMELAND’ – A workplace to improve devices for offloading the neuropathic foot by stakeholder collaboration from patients to academia

Van Netten J[1], Geerlings R[2], Dahmen R[3], de Rooij-Peek A[4], Manning E[5], Tenten-Diepenmaat M[6], Verwaard R[7], Bus S[1]
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Topic: Devices for offloading the foot of people at high risk of ulceration and amputation, including custom-made orthopaedic footwear and more.
Relevance: Within HOMELAND, we focus on people with diabetes-related and other neuropathies. To protect their feet, they should be wearing custom-made orthopedic footwear or similar devices during all weight-bearing activities.
Offloading devices to prevent or cure foot ulcers are provided in a multidisciplinary, yet frequently dispersed, clinical setting. These devices are also frequently not worn, or not sufficiently worn, as seen in rising numbers of foot ulcers and amputations. In HOMELAND, we aim to connect researchers, healthcare professionals, teachers, companies and patients. By sharing and bundling knowledge and expertise, we improve devices for offloading the neuropathic foot.
Current status: In its first year, HOMELAND has created a platform for a broad and open Academic Workplace. More than 20 partners, from academia, hospitals, higher education, orthopaedic and podiatry companies, patient and professional organisations, have joined HOMELAND. We have started four implementation projects, where scientific evidence will be implemented in daily clinical practice. We have started the first-ever group of patient representatives for this specific disease, embedded within Diabetesvereniging Nederland. We have investigated awareness for sustainability in this field.
Plan of action: In the coming year, we will organize a meeting and professional focus group for rehabilitation physicians with an interest in this topic. Furthermore, we will continue our implementation projects, start new research projects, and create a sustainability team.

O07

BornToGetThere: implementation of uniform care for infants at high risk of cerebral palsy

Hielkema T[1], Borghuis E[1,2], Boomsma H[1], Van der Horst H[1], Rietveld E[1], Schepers F[1], Toonen R[1], Meinsma M[2], Meeuwisse B[2], Keesom E[3], Berghuis S[4], Boomgaarden C[4], Kraft K[4], Bos A[4]
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Topic

In the Northern Netherlands, we are involved in the international project 'BornToGetThere', which focuses on implementation of early detection and early intervention for infants at high risk of cerebral palsy. Early intervention is most effective when provided in critical time windows during early development. Therefore, early detection is a prerequisite.

Relevance

By implementing early detection and early intervention for infants at high risk of cerebral palsy according to the latest scientific insights, we aim to improve infants' and caregivers' health and wellbeing. Early signalling and intervention both for the infant and family, may prevent future complications and empower caregivers. In this international project, it is a great chance to perform this as uniform and inclusive as possible, inside and outside the Netherlands.

Current status

We started trainings for the professional network on early detection, early surveillance and early intervention. When paediatricians-neonatologists detect infants at high risk of cerebral palsy, they refer the infants in an early phase to a paediatric rehabilitation physician. All children receive physiotherapy at home. Early surveillance takes place on several domains: motor, social-emotional, cognitive, visual, sensory/pain, language, sleep, parent stress, growth and nutrition. Intervention will start when needed. During the implementation process, evaluations will take place for professionals.

Plan of action

First infants are included in the project and will be followed until they are 24 months (corrected age). Network trainings will continue and e-learnings about early detection, surveillance and intervention will follow soon. International data will be collected and compared.

O08

Implementation of caregiver involvement by means of caregiver-mediated exercises in stroke rehabilitation at Roessingh, Centre for Rehabilitation

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Topic

Recently, a multicentre randomized controlled trial was performed to study the added value of caregiver-mediated exercises (CME) in addition to usual rehabilitation care post-stroke. CME included an 8-week program, with task-specific mobility exercises. Together with a trained physiotherapist, patient and caregiver set-up goals and a tailor-made program. Exercises were performed minimal 5x30 minutes per week, outside of the usual rehabilitation program. Results showed beneficial effects in caregivers' quality of life and symptoms of depression, without adverse events. In addition, involved therapists from Roessingh, Centre for Rehabilitation (RCR) were enthusiastic about the improved involvement of caregivers.

Relevance

Based on the results with CME, RCR set-up a new routine to increase involvement of caregivers in stroke rehabilitation by actively including the caregiver as co-therapist in balance and mobility related exercises. Patient and caregiver meet with their own therapist every other week for eight weeks, to discuss the progress and set new goals to improve transfer from in-patient treatment to the home situation.

Current status

A 6-month pilot is implemented to incorporate the new routine into clinical practice. Clinicians, patient-planners and management are involved in this process. Active involvement of patients and caregivers is incorporated by including interview structures to provide feedback on both the content and the process of this new routine.

Plan of action

The new routine of involving caregivers as co-therapist in the post-stroke physiotherapy treatment for balance and mobility is implemented in RCR. In future, increasing the involvement of caregivers in other disciplines and patient categories is aimed.

O09

Evaluation of a 12-week personalized aerobic and resistance exercise module as part of the rehabilitation of patients with different diagnoses.

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INTRODUCTION: Aerobic and resistance training can improve physical fitness in patients with different disorders. However, implementation in medical rehabilitation shows variable responses, which may be due to suboptimal training and/or patient characteristics. Unravelling this knowledge should allow all patients to benefit from training.
AIM This retrospective study aimed to evaluate changes in cardiorespiratory fitness after 12-weeks of strength and aerobic exercise in patients with different diagnoses. Second, we assessed how changes were associated with patient and training characteristics.
PATIENTS 42 patients (9 post covid, 20 neurological, 13 other), age 49.7±13.7 yrs who followed an outpatient exercise module (Merem rehabilitation). Pre-post measurements of VO2peak, Power Output at 1st and 2nd Ventilatory Threshold (PO@VT1, PO@VT2) were obtained from cardiopulmonary exercise testing. Training (4x/wk) included moderate-high intensity aerobic interval training and resistance exercise (2x) and home-based continuous aerobic exercise (2x). Exercise intensities were personalized on PO@VT1, PO@VT2 and 1RM. Training characteristics were monitored and aerobic training load was calculated (frequency x duration x weighted exercise intensity), based on Lucia's TRIMP.
RESULTS Mean VO2peak (13.0±11.5%), median PO@VT (21.5 [8.5-36.9]%), and mean PO@VT2 (21.9 ± 22.08%) improved significantly ($p<0.01$). Target intensity was consistent but training load varied. >90% Of patients improved without differences between diagnoses. Outcomes were not significantly correlated with age nor training load ($r<0.3$, $p>0.1$).
CONCLUSION 12-week personalized exercise improved cardiorespiratory fitness independent of diagnoses and age. Most patients respond positively to training, likely because intensity was personalized. Additional monitoring of home-based exercise and physical activity further helps to optimize individual training responses.

O10

Ommetje, a mobile application to support physical activity, is it inclusive enough for patients in rehabilitation treatment?

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Introduction: Ommetje(Hersenstichting) is a mHealth application to promote physical activity (PA), which also has the potential to support PA of patients in rehabilitation care.

Objective: To investigate the feasibility of using Ommetje during/after rehabilitation treatment by studying PA outcomes in professionals and their perspective on user-friendliness, applicability and improvements for Ommetje's inclusiveness.

Patients: forty-five health professionals, 3 former-patients.

Added value for patients: developing an application to support PA during/after rehabilitation treatment.

Methods: Participants used Ommetje for ≥1 month. PA was assessed with the International Physical Activity Questionnaire (IPAQ-SF; METs*minutes/week; at baseline, 1 and 6 months). Changes in PA between baseline-1 month and baseline-6 months were analyzed with the Wilcoxon-signed-rank-test($p<0.05$). User-perspective was assessed after 1 month by the System Usability scale (SUS;0-100;worst-best) and a self-developed questionnaire. SUS data was analyzed descriptively. Qualitative questionnaire data were coded (axial and selective).
Results: MET*minutes/week of moderate/vigorous PA improved from 1596 to 2083 minutes ($p=0.002$) after 1 month and to 2073 after 6 months ($p=0.03$). Domain IPAQ-Walking showed no significant change. Usability (SUS) was found good-excellent by 55% of the participants. Strengths of Ommetje: encouraging/motivating PA and its interactive nature. Potential improvements: increase inclusiveness (e.g. minimum walking time), more personalization to individual needs and adding clearer instructions.

Discussion and conclusions: Ommetje has the potential to increase moderate/vigorous-PA, is feasible for use in rehabilitation care and can be improved to increase inclusiveness.

Clinical message: Ommetje can be used for patients but needs adaptations to be more inclusive.

O11

Resistance exercise training counteracts the adverse effects of androgen deprivation therapy on body composition and physical capacity in prostate cancer patients

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Introduction: Androgen deprivation therapy (ADT), the cornerstone in advanced prostate cancer (PCa) treatment, results in numerous adverse effects.
Objective: Assessing whether 20-weeks resistance exercise training (RET) with or without protein supplementation, can counteract the ADT-induced adverse effects on body composition and physical capacity.
Patients: PCa patients on ADT.
Methods: Sixty patients were randomized to RET with placebo (EX+PLA, n=30) or protein (EX+PRO, n=30) supplementation. A separate control group (CON, n=36) received usual care. At baseline and after 20 weeks, body composition (dual-energy X-ray absorptiometry), quadriceps muscle mass (computed tomography), leg muscle strength (1-repetition maximum test), aerobic capacity (cardiopulmonary exercise test) and habitual dietary intake (food diary), were assessed. Data were analyzed using two-factor repeated-measures ANOVA, followed by within-group (paired-samples t-tests) and between-group (univariate general linear models) analyses.
Results: Whole-body fat mass was maintained in EX+PRO, significantly different from the increase in CON (2.1±1.7; $P<0.005$). Muscle mass and strength increased similarly in both exercise groups (EX+PLA: 2.0±3.0 cm^2, 12±14%, respectively; EX+PRO: 1.9±2.7 cm^2, 13±11%, respectively), significantly different from the decrease in CON (-1.2±2.5 cm^2, -5±11%, respectively; all $P<0.001$). Aerobic capacity was maintained in EX+PLA, significantly different from the decrease in CON (-3.0±2.7 mL/min/kg body weight; $P<0.01$). Habitual protein intake averaged >1.0 g/kg body weight/day, with no differences over time or between groups.
Discussion and conclusion: RET counteracts the adverse effects of ADT on body composition, muscle mass, strength and aerobic capacity, with no benefits of protein supplementation.
Clinical message: We strongly advise implementation of RET in standard care during ADT.

O12

Empowering patients towards sustainable physical activity; development of a person-centered intervention integrating behavioral change science and design research

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Introduction
Healthcare interventions rarely result in sustained physical activity. Interventions that incorporate behavioral science to empower patients' self-management are needed.

Objective
To develop an intervention that supports health professionals in using behavioral change to enhance patients' self-management in achieving sustained physical activity.

Patients
Patients who do not meet healthy physical activity levels.

Added value for patients
Healthy physical activity levels allow rehabilitation patients to engage in meaningful community participation.

Methods
Context mapping (8 sessions with 38 clients) and storytelling (12 clients, 11 professionals) guided the development of movement profiles. The behavior change wheel combined with a scoping review (19 reviews, 33 RCTs) guided the design of a behavior change decision tool. Cocreation with professionals and clients, testing prototypes, and a feasibility study were conducted.

Results
The combined information led to the movement profiles and behavior change decision tool of the InMotion intervention. Patients are asked to circle what they recognize about themselves in the movement profiles. In the subsequent consultation, professionals and patients discuss the profiles and use the decision tool that leads stepwise to tailored interventions and behavior change techniques. Together they make arrangements which actions can be deployed. The feasibility study (n=52 patients) showed that the intervention supports an active patient role, insight into needs and context, and shared decision-making, but the decision tool was perceived challenging.

Discussion and conclusion

The InMotion intervention shows promise in supporting long-term physical activity levels.

Clinical message
Supporting professionals in applying tailored behavior change techniques can enhance patients' self-management in physical activity.

O13

Usability of a mobile health application to support home-based aerobic exercise in neuromuscular diseases

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Introduction: Barriers to home-based aerobic exercise in people with neuromuscular diseases (NMD) include reduced possibilities for monitoring and difficulties to train within target intensity zones. To overcome these and other barriers we developed the 'Keep on training with ReVi' app (ReVi-app).

Objective: To determine the usability of the ReVi-app.

Patients: Twenty-nine ambulatory adult patients (mean±SD age: 50.4±14.2 years) with slowly progressive NMD.

Added value for patients: The app supports patients during home-based training, by providing real-time feedback on reaching target intensity zones, and enabling monitoring via an online dashboard.

Method: Patients followed a 4-month polarized home-based aerobic exercise program on a cycle or rowing ergometer, supported by the ReVi-app. Patients and physiotherapists evaluated usability using self-developed questionnaires, covering different usability elements; efficiency, effectiveness and satisfaction.

Results: Twenty-seven patients and 10 physiotherapists returned the questionnaire. They reported that the app, in terms of its efficiency, was easy to use and had a rapid learning curve. Sixteen patients (55%) experienced one or more technical issue(s) during the course of the exercise program. For effectiveness, 22 patients (81%) indicated that the app motivated them to complete the program and that it helped them to exercise within the target intensity zones. Most patients (n=19, 70%) and physiotherapists (n=6, 60%) were satisfied with the use of the app.

Discussion and conclusions: The usability of the ReVi-app was high.

Clinical message: The ReVi-app is a promising tool to support aerobic exercise, but technical issues must be resolved before broader implementation into clinical practice.

O14

What and how do families communicate about ALS? A qualitative exploration of parents' and children's perceptions

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Introduction: In families with a parent diagnosed with amyotrophic lateral sclerosis (ALS), children's adjustment depends among others on how their parents communicate about the disease trajectory.

Objective: The aim of this study was to explore parents' and children's perceptions of ALS-related family communication in relation to communication topics, styles and challenges.

Methods: A secondary qualitative analysis using a conventional content analysis approach was applied to interview data previously collected from 8 parents with ALS, 13 well parents and 15 children.

Results: Four themes emerged relating to communication topics: giving the facts, acknowledging and sharing feelings, preparing for care and equipment, and discussing the end and future. Six themes emerged relating to communication styles: open and honest, avoidant, waiting for changes, gradual disclosure, waiting for questions, and keeping it light. Six themes emerged relating to communication challenges: a lack of answers, adjusting to developmental stage, feeling uncomfortable, parental emotional unavailability, being afraid of burdening the other and denial.

Discussion and conclusion: The study provides a better understanding of how parents and children in families living with ALS communicate about the disease trajectory. Although most families open the dialogue about ALS, they encounter challenges which may hamper good familial communication.

Clinical message. Through addressing communication challenges, healthcare professionals may facilitate timely and open ALS communication within families which is deemed essential for children's adaptation to life with ALS. The derived knowledge may also be exploited to improve communication among families living with other progressive diseases.

O15

Effect of stiffness-optimized ankle-foot orthoses on gait stability in people with neuromuscular diseases and bilateral calf muscle weakness

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Background
Calf muscle weakness is common in people with neuromuscular diseases and negatively impacts gait stability and walking energy cost. Stiffness-optimized ankle foot orthoses (AFOs) reduce energy cost of walking compared to conventional AFOs. However, it is unknown whether stiffness-optimized AFOs improve gait stability as well.

Objective
To compare gait stability between walking with stiffness-optimized AFOs, conventional AFOs, and shoes-only in adults with bilateral calf muscle weakness.

Methods
We included ten adults with bilateral calf muscle weakness and recorded 3D gait biomechanics in three conditions: 1) shoes-only, 2) conventional AFO, and 3) stiffness-optimized AFO. For each condition, we assessed step length and step width variability, and the mediolateral and anteroposterior margins of stability (ML_MoS and AP_MoS) as measures of gait stability. Differences between conditions were assessed with Generalized Estimating Equations, corrected for walking speed.

Results
No significant differences in step width and length variability, and ML_MoS and AP_MoS were found between stiffness-optimized AFOs and conventional AFOs. The mean (95% confidence interval) ML_MoS was increased in both conventional (0.059 (0.051-0.067)) and stiffness-optimized AFOs (0.061 (0.053-0.069)) compared to shoes only (0.049 (0.043-0.053)), Wald χ^2=12.6, P=0.002.

Discussion and conclusions
The utilization of AFOs while walking improves mediolateral gait stability independent of gait speed compared to shoes only in people with bilateral calf muscle weakness. However, stiffness-optimized AFOs were not superior in improving gait stability compared to conventional AFOs.

Clinical message
Optimizing AFOs for energy cost of walking and gait speed does not automatically improve gait stability as well.

O16

Optimizing protocol selection for cardiopulmonary exercise testing in slowly progressive neuromuscular diseases

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Introduction: Cardiopulmonary exercise testing (CPET) is recommended to last 8-12 minutes, usually achieved by pre-set workload increments based on clinical expertise or using prediction equations to estimate peak workload (Wpeak). Using these procedures developed for healthy people in people with neuromuscular diseases (NMD) will likely result in tests outside the 8-12 minutes window.
Objective: To develop a predictive model to estimate Wpeak in NMD.
Patients: 103 patients with slowly progressive NMD.
Added value for patients: Optimized protocol selection leads to more accurate physical fitness assessment.
Methods: A linear regression model was developed using backward elimination, based on tests lasting 8-12 minutes, with Wpeak as dependent variable, and 6-minute walk test (6MWT) distance, step count, gender, age, height, weight, and Medical Research Council (MRC) cycle score as potential independent variables. The mean difference between Wpeak and Wpeak-predicted was analyzed with a paired t-test, and the Limits of Agreement (LoA) to determine individual bias.
Results: The regression analysis resulted in: Wpeak-predicted = 21.285 + 0.186*6MWT + 22.063*gender – 1.358*age + 0.809*weight + 0.009*steps (R2=0.79). No significant difference was found between experimentally assessed Wpeak (mean = 126.5 ± 60.7 Watts) and Wpeak-predicted (mean = 131.9 ± 51.8 Watts). The LoA were -71.2 to +60.3 Watts. Based on clinical judgement and the predictive model, respectively 59% and 64% of the tests were estimated between 8-12 minutes.
Discussion and conclusions: Our model predicted Wpeak accurately at group level.
Clinical message: Applying the model was superior to clinical judgement for predicting CPET peak workload.

O17

PROMIS-29 and PROMIS cognition function: outcomes 1 year after stroke.

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Introduction
The Patient Reported Outcome Measures Information System (PROMIS) is recommended as outcome measure for stroke patients by the ICHOM (International Consortium for Health Outcomes Measurement).
Objective
To determine changes of PROMIS instruments (8 domains) between admission and 12 months after hospitalization for stroke.
Patients
Hospital based stroke population.
Added value for patients
In order to evaluate stroke outcomes, instruments to capture clinical changes over time are needed.
Methods
PROMIS-29 and PROMIS Cognitive Function (PROMIS-CF) questionnaires were administered during admission for stroke, and 12 months thereafter. The PROMIS-29 covers seven domains (depression, anxiety, physical function (PF), pain interference, fatigue, sleep disturbance and ability to participate in social roles and activities (AtP)); the PROMIS-CF covers the cognitive domain. Domain scores range from 0-100, higher scores means more of the tested concept. Paired T-Tests were used to determine changes over time.
Results
267 patients were enrolled, M/F 152/115, mean age 69.8 (SD13.5) years. PROMIS-PF and PROMIS-AtP outcomes significantly improved after 12 months, 14.8 (SD10.4) and 21.7 (SD14.9) points respectively whereas significant worsening was seen for on depression (3.8 (SD9.2)), anxiety (2.8 (SD9.4)), pain interference (6.2 (SD11.2), fatigue (3.0 (SD10.7)) and cognition (5.8 (SD10.4)). Sleep disturbance showed no statistically significant differences.
Discussion and conclusions
Despite large improvements in physical functioning and social activities one year after stroke, other outcomes did not improve or deteriorated.
Clinical message
Although some domains of health status had improved one year after stroke (PROMIS-PF, PROMIS-AtP), others showed a significant deterioration, underlining the need for long-term follow-up.

O18

A national consensus-based document on current practice with preferred assessments, interventions, and psychoeducation for young people with acquired brain injury across Dutch rehabilitation centers

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Introduction: Acquired brain injury(ABI) is prevalent among young people(4-25 years). When ABI-related problems persist, treatment in a rehabilitation center(RC) may be indicated. However, there is a wide variability regarding the delivery of care across Dutch RCs, including assessments, interventions, and psychoeducational materials(PE-materials).
Objective/Added-value: To create a consensus-based document with preferred assessments, interventions, and PE-materials to be used in pediatric ABI-rehabilitation. A national document could optimize the delivery of comparable care for this population.
Participants: Healthcare professionals (physicians, psychologists, social-workers, physical/occupational/speech/language-therapists) from Dutch RCs.
Methods: For this three-round Delphi study, healthcare professionals from RCs providing care for young people with ABI were invited to participate. In the first two (online)rounds, currently used assessments/interventions/PE-materials were collected, stepwise-prioritized, subsequently listed per discipline, and classified per International-Classification-of-Functioning(ICF)-domain. Results from rounds one/two were discussed in a consensusmeeting(in-person), aiming to reach agreements on assessments/interventions/PE-materials in the national document and how to use this in current practice.
Results: Seventy-four healthcare professionals from 12 RCs participated. After Delphi round one, 163 assessments, 39 interventions, and 64 PE-materials were collected. After round two, the selection was narrowed down to n=51/n=34/n=28, respectively. After round three, consensus was reached on 37 assessments, 25 interventions(divided over all disciplines/classified per ICF-domain), 27 PE-materials, as well as consensus on the use of the document by all participating RC to enhance clinical reasoning in current practice.
Conclusions/Clinical message: A consensus-based national document in ABI-rehabilitation has been developed which is now available to optimize the delivery of care for young people with ABI across Dutch RCs.

O19

Exploring acquired childhood aphasia: a national longitudinal study

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Introduction: acquired childhood aphasia (ACA) is a language disorder after acquired brain injury (ABI). ACA is underdiagnosed: children with language difficulties after ABI are often not referred to rehabilitation. Furthermore, very little is known on language recovery in this population. Adequate treatment of the communication deficits is crucial, as ACA hinders developing academic skills and social participation.
Objective: obtaining more insight in ACA and language recovery.
Participants: children aged 2-18 years with acquired language or communication problems after ABI.
Added patient value: systematic language testing during the study ensures tailored speech and language therapy (SLT) for participants. The study will provide more insight in ACA, yielding better rehabilitation outcome.
Methods: multicenter prospective observational study with a five-year follow-up. Core outcome sets of language tools were determined via a Delphi procedure. Language tests are performed at inclusion, six months later and subsequently yearly.
Results: the study is still ongoing. Thus far, 44 children were included. Preliminary analyses suggest that some children start SLT many months after ABI onset. Furthermore, no child has fully recovered language after six months of SLT. At the conference we will share updated results on language function in ACA, recovery patterns in the first year and the impact of ACA on daily life.
Discussion and conclusion: Language recovery in ACA takes time. Factors underlying successful recovery are still unclear.
Clinical message: ACA can be a chronic condition, severely hampering participation in daily life, school and academic development. Early referral to tailored and evidence based rehabilitation is needed.

O20

Reducing the physiological and biomechanical demands of manual wheelchair propulsion with different assistance-levels of a pushrim-activated power-assisted wheel on an instrumented ergometer with able-bodied participants

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Introduction: The Pushrim-Activated Power-Assisted Wheelchair (PAPAW) is developed, as a solution in-between regular manual wheelchair and fully powered wheelchairs, to maintain an active lifestyle while reducing strain of ambulation.
Objective: To examine the effect of increasing levels of assistance of a PAPAW on energy expenditure and wheelchair propulsion technique in able-bodied participants.
Methods: This cross-sectional study included twenty-four able-bodied participants (aged 21.1 (±1.4) years), who performed 4 submaximal trials (at 1.11m/s and 0.21W/kg body mass resistance) of 4-minutes propulsion, using no, low, medium and high power-assist modes in counterbalanced order. During these four submaximal trials, energy expenditure, heart rate and perceived exertion were measured. Secondly, force data from the wheelchair ergometer and PAPAW were used to examine the participants' peak forces.
Results: Energy expenditure (no, 299(±43) J/s; low, 250(±37) J/s; medium, 240(±44) J/s; high, 224(±38) J/s) and heart rate (no, 95(±12) bpm; low, 88(±10) bpm; medium, 86(±11) bpm; high, 84(±11) bpm) decreased for every step of increased PAPAW assistance. Secondly, participants' peak force per push reduced with an increase in assistive mode (no, 94(±17) N; low, 64(±11) N; medium, 58(±7) N; high, 56(±11) N).
Conclusions: Increased assistance-levels of the PAPAW cause a decrease in metabolic and mechanical demands of manual propulsion. Likewise, peak forces reduce when propelling with increased assistance and could, therefore, be one of the underlying mechanisms reducing metabolic costs.
Clinical message: Propelling with higher assistive modes reduces metabolic and mechanical demands. Moreover, increased assistance can possibly reduce fatigue and risk for development or exaggeration of upper-extremity injuries.

O21

Validity and reliability of the Dutch translation of the OPUS' Client Satisfaction with Device module in chronic hand orthotic users

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Introduction Annually, approximately 27,000 upper extremity orthoses are provided in the Netherlands. However, no instrument specifically assessing orthosis satisfaction is available in the Dutch language.

Objective To translate the English Client Satisfaction with Device (CSD) module of the Orthotics and Prosthetics Users' Survey into Dutch, and assess its content validity, structural validity and reliability in persons with chronic hand conditions.

Methods After cross-cultural translation, the content validity of the Dutch (D)-CSD was determined by judging its relevance, comprehensibility, and comprehensiveness. Thereafter, in a cross-sectional study, 76 participants completed the D-CSD twice. Dimensionality of the D-CSD was determined by principal component analysis (PCA). Factor model fit was assessed by confirmatory factor analysis (CFA). Internal consistency was determined with Cronbach's α. Test-retest reliability was assessed with the intraclass correlation coefficient (ICC), standard error of measurement (SEM) and smallest detectable change (SDC).

Results D-CSD items were deemed relevant and comprehensible. After adding an item on cleaning the orthosis, content validity was judged sufficient. The final D-CSD includes 10 items (score range: 0-40). PCA indicated a one-factor model, which was confirmed by CFA. Good internal consistency (Cronbach's α=0.82) and moderate to good test-retest reliability (ICC=0.81; 95%CI 0.71-0.87) were found. The SEM and SDC were 2.88 and 7.98, respectively.

Conclusions Based on sufficient content and structural validity, good reliability, and an acceptable SEM, we considered the D-CSD a useful tool to evaluate orthosis satisfaction in persons with chronic hand conditions on group level. Sensitivity to detect changes over time on individual level is limited.

O22

Comparison between USER-Participation and PROMIS-APS and PROMIS-SPS to evaluate participation in a rehabilitation population: a cross-sectional multicentre study

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Introduction: Various Patient Reported Outcome Measurements (PROMs) can be used to quantify levels of participation in rehabilitation patients. There is a lack of comparative research into the psychometric properties of these PROMs.

Objective: To explore and compare the measurement properties between the Utrecht Scale for Evaluation of Rehabilitation - Participation (USER-P), and the Patient-Reported Outcomes Measurement Information System Ability to Participate in Social roles and Activities (PROMIS-APS) and Satisfaction with Social Roles and Activities (PROMIS-SPS).

Patients: A multi-diagnostic group of former rehabilitation patients (N=563).

Added value for patients: Selecting the most appropriate PROM can contribute to better measurement of participation for patients during rehabilitation.

Methods: Both PROMS were included in a cross-sectional survey. Internal consistency, score distributions, floor/ceiling effects, and intra/inter-correlations were assessed.

Results: The PROMIS-APS and PROMIS-SPS showed higher internal consistency (α=0.96 and 0.95, respectively) compared to the USER-P Restriction and Satisfaction subscales (α=0.90 and 0.82, respectively). The inter-correlation was 0.60 between PROMIS-APS and USER-P Restrictions and 0.70 between PROMIS-SPS and USER-P Satisfaction. The PROMIS-APS and PROMIS-SPS were more strongly correlated with each other (r=0.75) than the USER-P Restrictions and Satisfaction subscales (r=0.55).

Discussion and conclusions: Both PROMs seem adequate to measure participation. However they are not interchangeable due to differences in their characteristics and measurement properties.

Clinical message: Choosing the best appropriate participation PROM depends on the purpose of the PROM in clinical practice.

O23

Development and reliability testing of a qualitative observational rating system for individuals with brachial plexus injury performing Functional Capacity Evaluation tests.

Van Der Laan T[1], Postema S[1], van der Sluis C[1], Reneman M[1]
[1]Department of rehabilitation medicine, University of Groningen, University medical center Groningen

Introduction
Individuals with brachial plexus injury (BPI) may be more prone to develop musculoskeletal complaints (MSCs), due to compensatory strategies.

Objective
1. To develop an observational rating system for rating postures and movements of the shoulders and trunk in individuals with BPI during the performance of the functional capacity evaluation one-handed-individuals (FCE-OH). 2. To examine the interrater and intrarater reliability of this rating system.

Patients
Fifteen individuals with BPI and twenty-one able-bodied controls.

Added value for patients
A standardized assessment of compensatory movements may help professionals to develop targeted treatment plans that may help to prevent MSCs.

Methods
Participants were videotaped during the performance of five FCE-OH tests. Deviant shoulder and trunk movements and postures were identified and the rating system was developed, pilot tested and adjusted. For exploring the interrater and intrarater reliability of the final draft sixteen raters performed two rating sessions and rated 40 video fragments. Kappa (κ) and 95% confidence intervals (CI) were calculated.

Results
The intrarater reliability was κ=0.64, 95%CI=0.50-0.70. The interrater reliability in the first and second sessions were κ=0.48, 95%CI=0.36-0.60 and κ =0.59, 95%CI=0.45-0.72.

Discussion and conclusion
The intrarater reliability of the developed rating system was sufficient. The interrater was moderate for the first rating session and almost sufficient in the second rating session. Variation in movement patterns due to differences in remaining function of the affected arm caused difficulties in rating.

Clinical message
Standardized assessment of movement patterns in individuals with BPI is complicated due to large variability in movement patterns.

O24

Participation and quality of life among significant others of individuals with spinal cord injury: Course and predictors

Scholten E[1], Coskun E[1], Post M[1,2], Roels E[2], Stolwijk J[1]
[1]Center Of Excellence For Rehabilitation Medicine, [2]University of Groningen, University Medical Center Groningen, Department of Rehabilitation Medicine, Center for Rehabilitation
Introduction: Spinal cord injury (SCI) can have psychosocial consequences for significant others of persons with a SCI.
Objective: To determine the course of participation (frequency, restrictions, satisfaction) and life satisfaction among significant others up to five years after onset of SCI and to identify predictors of this time course.
Patients: Significant others of persons with a SCI (n=136).
Added value for significant others: Insight into the course and its predictors can help to timely support significant others experiencing problems or being at risk for negative outcomes.
Methods: Secondary analysis of data from the longitudinal multicenter cohort POWER-study, conducted in eight Dutch rehabilitation centers. Participation of significant others was assessed using the Utrecht Scale for Evaluation of Rehabilitation-Participation (USER-Participation), life satisfaction with the Life Satisfaction questions (2LS). Multilevel (random coefficient) analysis was performed.
Results: Participation and life satisfaction scores showed a significant upward trend over time, except for the USER-Participation frequency subscale, which did not change over time. Higher participation scores over time were predicted by higher levels of general health and higher participation scores at baseline. Significant predictors for a higher life satisfaction over time were younger age, lower burden of caregiving, higher levels of general health, and higher life satisfaction scores at baseline.
Discussion and conclusions: The results demonstrate the impact of different factors on participation and life satisfaction in the first years after onset of SCI.
Clinical message: Screening for these factors can help physicians to identify and support significant others who are at risk of negative outcomes.

Parallel Session A & B

Parallel Session A & B: Extra long workshops (2,5 hours)

AB 1: Equality and inclusivity of rehabilitation is in danger. Can hybrid care help us making a paradigm shift?

MD Paulien Goossens[1], BBA Sander Bijl[2], MD Anouk van Oers[1], MSc Annette Brons[1,4], MBA Ton Hafkamp[1,3]

[1]Stichting Merem Medische Revalidatie, [2]Beter Dichtbij , [3]Management A50, [4]Hogeschool van Amsterdam

Abstract

Health care in The Netherlands is in danger. There are too many people with multimorbidity, health limits and handicaps, too little employees who can or want to work in health care. Besides, costs of health care are rapidly growing. If we do not change our ways of working, health care in general and rehabilitation specifically will only be available and affordable for the happy few. Even now, equality and inclusivity of rehabilitation is not always obvious. For example, transportation costs to the rehabilitation center, or the costs of first line therapy needed in stepped care programs can hamper patients to follow treatment. We will need a paradigm shift in order to make rehabilitation accessible for all. In this workshop we present a framework for digital transformation, aiming at this paradigm shift. In this interactive workshop we aim to “dream” and redesign rehabilitation in a way that’s hybrid and future proof. For inspiration, Beter Dichtbij pitches their vision on the future of care.

Session description including learning objective(s)

At the end of the workshop participants know what the integral health agreement (IZA) states about equality and inclusivity. The digital transformation roadmap is enlighted: reaching the dot on the horizon bij doing, thinking and dreaming. In small groups discussions are conducted on the dot we as rehabilitation physicians want to place on the horizon and how we can redesign rehabilitation. The intended purpose of this workshop is that participants go home with a sense of urgency, but with a positive feeling towards the possibilities of a hybrid future.

Presentations:
Paulien Goossens 15':
The integral health care agreement and accessibility of health care.
Anouk van Oers en Ton Hafkamp 20':
The digital roadmap. Do-think-dream!
Annette Brons 15':
Health care now and in the future: what does the patient need?
Interactive session 40':
Let’s dream!
Sander Bijl 20'
Will “Beter Dichtbij” cause a paradigm shift?
Interactive session and wrap up 40':
What can we do tomorrow?

Outline session
After the general introductions, participants split up in small groups to discuss chances of hybrid care via the principles of design thinking. The founder of Beter Dichtbij challenges the participants with his view on the future. Participants end with an interactive session in new groups: which good ideas can they start with tomorrow?

AB2. Symposium: Betekenisvolle en levensloopgerichte revalidatiegeneeskundige zorg voor kinderen en volwassenen met Cerebrale Parese (CP) - Gebruik van patiënt-gerapporteerde uitkomsten in de spreekkamer en nieuwe ontwikkelingen in zorg en onderzoek

In het Nederlands CP register verzamelen we klinische data en patiënt-gerapporteerde uitkomsten bij kinderen en jongeren met CP, om meer kennis te krijgen over de variatie en effecten van (revalidatie)behandelingen. Een van de pijlers van het register is het gebruik van die gegevens in de individuele patiëntenzorg ter ondersteuning van samen beslissen. Maar hoe realiseer je dat in de praktijk?

Een andere uitdaging is de zorg voor mensen met CP op volwassen leeftijd en het gebrek aan bewijs voor effectieve behandelingen voor volwassenen met CP. In diverse revalidatiecentra is er een toename van aandacht voor deze doelgroep, en uit wetenschappelijk onderzoek komt meer kennis beschikbaar over de meest voorkomende klachten bij volwassenen met CP en effectiviteit van interventies. In dit symposium presenteren we recente ontwikkelingen en onderzoeksresultaten over frequent voorkomende klachten bij volwassenen met CP en nieuwe behandelmogelijkheden.

In dit minisymposium besteden we aandacht aan deze twee uitdagingen, met in deel 1 goede voorbeelden uit de kindergeneeskundige praktijk over het de waarde van registerdata in de spreekkamer. In deel 2 presenteren we drie onderzoeken bij volwassenen met CP, gericht op ervaren klachten en de invloed daarvan op dagelijkse activiteiten en op nieuwe interventies naar het omgaan gaan met deze klachten, en naar het inzetten van bewegen en muziek in de behandeling.

Voozitters

Dr. Marij Roebroeck (voorzitter deel 1), Erasmus MC, Stuurgroep Nederlands CP register

Dr. Jeanine Voorman (voorzitter deel 1), UMC Utrecht, Stuurgroep Nederlands CP Register

Dr. Marike Maijers (voorzitter deel 2), Reade, Amsterdam

Programma en sprekers

Het Nederlands CP Register: Implementatie in de praktijk en eerste ervaringen in de patiëntenzorg - Prof. dr. Annemieke Buizer, Amsterdam UMC, voorzitter van de VRA Werkgroep CP en het Nederlands CP register, samen met een register partner van het Nederlands CP register

Key4OI: de Key4OI uitkomsten set en ervaringen van mensen met osteogenesis imperfecta (OI) en behandelaars hiermee in de zorg - Dr. Marjolein Verhoef, UMC Utrecht, samen met een patiënt vertegenwoordiger van de Vereniging Osteogenesis Imperfecta (VOI)

Ervaringen van patiënten en behandelaren met het KLIK portaal voor terugkoppeling van patiënt gerapporteerde uitkomsten - Lorynn Teelen, of Hedy van Oers PhD, KLIK PROM Expertise Centrum, Amsterdam UMC, Emma Kinderziekenhuis

CP bij volwassenen, uit de kinderschoenen? - Dr. Marike Maijers, Reade, Amsterdam

Inzicht in 24 uurs activiteiten bij volwassenen met CP en relatie met vermoeidheid - Dr. Olaf Verschuren, Kenniscentrum Revalidatiegeneeskunde Utrecht, UMC Utrecht en De Hoogstraat Revalidatie

CP, hoe leef je ermee? Klinische resultaten van een innovatieve groepsinterventie bij volwassenen met CP - Dr. Wilma van der Slot, Rijndam Revalidatie en Erasmus MC Rotterdam

Kan muziek helpen om het lopen bij volwassenen met cerebrale parese te ondersteunen? - Jule Zuiderbaan, PhD-candidate Klinische Neuropsychologie Vrije Universiteit, Amsterdam, promotor Erik Scherder

Parallel Session B

B3 Innoveren in je eigen instelling, hoe doe je dat?

MSc Jeroen Smale[1], Dr. Robert Pangalila[2], Dr. Stephanie Jansen[3], Dr. Corien Nikamp[3], - Dr. Nynke Biegel-Slappendel[4], Wolanda Werkman[4]
[1]Revalidatie Nederland, [2]Rijndam en Commissie Wetenschap en Innovatie, [3]Roessingh Research & Development, [4]Rijndam Revalidatie
Doelgroep:
Iedereen geïnteresseerd in, en betrokken bij innovaties in de revalidatie zorg, zoals revalidatieartsen, innovatiemanagers, therapeuten en bestuurders.
Voor de innovatie managers en eventueel ook de bestuurders is er de mogelijkheid om alleen voor dit onderdeel in te schrijven voor de DCRM.

Samenvatting:

- Beschrijving van de sessie inclusief leerdoelen

Revalidatie is een vak dat zich uitstekend leent voor innovatie. Maar de praktijk blijkt weerbarstig. Een goede voorbereiding met tijdig betrekken van eindgebruikers en stakeholders, vroegtijdig nadenken over implementatie en financiering kan helpen voorkomen dat goede ideeën vroegtijdig of zelfs in de eindfase stranden.
Leerdoel voor de deelnemers. Na afloop van de sessie hebben deelnemers:
- kennis van het bestaan van een landelijk innovatienetwerk en nemen daar eventueel actief deel aan;
- kennis over de manier waarop zij vanuit hun eigen professie en functie kunnen bijdragen om een innovatie tot een succes te maken;
- geleerd van praktijkvoorbeelden van geslaagde innovaties.

- Voorzitter en presentatoren met titels van de presentaties en speakers

Voorzitter: Robert Pangalila en Jeroen Smale: overzicht van innovaties in de Nederlandse revalidatieinstellingen.
Corien Nikamp, Roessingh Research and Development: vroege verstrekking van EVO na CVA, implementatie van een nieuw spreekuur.
Wolanda Werkman en/of Nynke Biegel, Rijndam: Cirkels van nabijheid.
Stephanie Jansen-Kosterink, Roessingh Research and Development: Het vergroten van de impact van (gepersonaliseerde) zorgtechnologie in de revalidatiezorg door gebruikt te maken van de SROI methode.

- Beschrijving van de sessie

Eerste 10 minuten (plenair): Een kort overzicht van innovaties in Nederland: waar, op welke thema's en in samenwerking met welke universiteiten en hogescholen. We toetsen aan de aanwezigen of er behoefte is aan een innovatienetwerk waarin deelnemers zowel informatie en kennis halen als brengen.
Daarna 20 minuten (plenair): twee praktijkvoorbeelden van geslaagde innovaties van elk 10 minuten door Corien Niekamp en Wolanda Werkman/Nynke Biegel (zie presentaties). Het gaat hier om innovaties die daadwerkelijk en voor een verandering in de praktijk hebben gezorgd.
Na dit plenaire deel 20 minuten in twee (aantal afhankelijk van aantal deelnemers aan de workshop) groepen uiteen om vanuit de eigen professie met elkaar te bespreken waar de workshopdeelnemers in hun eigen instelling tegenaan lopen. En hoe zij een bijdrage kunnen leveren aan een succesvolle innovatie.

10 minuten (plenair)
Stephanie Jansen-Kosterink: Het vergroten van de impact van (gepersonaliseerde) zorgtechnologie in de revalidatiezorg door gebruikt te maken van de SROI methode.
De internationaal gevalideerde methode is erg geschikt voor een maatschappelijke impact van een (technologische) innovatie zichtbaar te maken.
25 minuten:
Na een kort uitleg over de methode gaan we samen aan de slag met de Innovatie Matrix. In groepjes zullen de deelnemers werken aan de thema van deze matrix (belanghebbende, inbreng, opbrengsten, impact, waarde) voor een eigen (technologische) innovatie.

5 minuten: Afronding
Hierin kijken we naar het vervolg. Het proces binnen VRA en RN.

Toegevoegde waarde voor patiënten
De workshop is er nadrukkelijk op gericht om de kans te vergroten om innovaties daadwerkelijk in de praktijk te laten landen. Dat kan gaan om de klinische praktijk, wanneer het een inhoudelijke innovatie betreft, maar ook procesmatige innovaties of technische innovaties in de thuisomgeving van de patiënt behoren tot de mogelijkheden.
De eindgebruiker kan de patiënt zijn, maar dat hoeft niet. Wel gaat het altijd om patiëntenzorg, direct of indirect. Dat kan liggen op het niveau van kwaliteit, efficiëntie of proces.

B4 Afbakening van de MSR vanuit verschillende invalshoeken

MD Paul Dekker[1], MD Marco Persoons[1], MD Willemijn van Gils[1]
[1]Lumc

De (bekostiging van de) revalidatiegeneeskunde staat onder druk en die druk lijkt alleen maar verder toe te nemen. De klinische revalidatie binnen de MSR en GRZ staan steeds meer ter discussie en er moet steeds meer zorg worden verplaatst naar de 1e lijn. Hoe gaan wij als revalidatieartsen om met deze en andere factoren die de toekomst van de MSR bepalen? En hoeveel invloed hebben wij zelf eigenlijk?

De beroepsbelangen commissie (BBC) organiseert samen met een vertegenwoordiger vanuit een zorgverzekeraar een workshop om u mee te nemen in een aantal actuele thema's die op dit moment verder vorm krijgen, o.a. vanuit het IZA. Door middel van een interactieve discussie worden verschillende standpunten besproken zodat u op de hoogte bent van de ontwikkelingen.

Opzet
Na een korte introductie worden middels verschillende stellingen 4 thema's en de visie hierop vanuit de zorgverzekeraar besproken door een interactieve discussie met de sprekers en het publiek.

Doel
na het volgen van deze workshop is de deelnemer op de hoogte van verschillende thema's die de toekomst van MSR medebepalen, en hoe vanuit het perspectief van zorgverzekeraars naar deze thema's wordt gekeken.

B5 Vergroot de impact van je onderzoek: implementatie als eerste stap (in plaats van als laatste)

PhD Esther Hosli[1], PhD Marlies Welbie[2]
[1]Ned. vereniging van revalidatie artsen (VRA), [2]Hogeschool Utrecht

Wetenschappelijk onderzoek levert een belangrijke bijdrage aan het vergroten van de kwaliteit van zorg en aan 'rehabilitation for all'. Een voorwaarde daarvoor is wel, dat nieuwe inzichten uit onderzoeksresultaten worden geïmplementeerd in de praktijk. 'Implementatie' is dan ook één van vier pijlers van het VRA beleidsplan 'research coördinatie'. Succesvollere implementatie van resultaten uit onderzoek in de zorgpraktijk is klinisch zeer relevant en komt direct ten goede aan patiënten.

Implementatie wordt door onderzoekers veelal gezien als iets dat gebeurt aan het einde van het onderzoek, als de resultaten bekend zijn. De ervaring heeft echter geleerd, dat het voor een succesvolle implementatie essentieel is om degenen die met de inzichten aan de slag moeten al veel eerder te betrekken. Namelijk aan het begin van een onderzoek, bij het maken van het onderzoeksvoorstel. Inclusiviteit, alle partijen (o.a. ervaringsdeskundigen) betrekken die betrokken zijn bij het onderwerp, vergroot de kans op daadwerkelijke implementatie en dus van de impact van een onderzoek. Dit is echter niet eenvoudig. Verschillende partijen kunnen een andere kijk hebben op de problematiek en heel verschillende dingen willen bereiken met het onderzoek. Met deze workshop willen we de bewustwording vergroten van het belang van 'implementatie als eerste stap' én deelnemers handvatten geven om dit in hun eigen onderzoek vorm te geven.

Opzet:
- Inleiding over implementatie en over de 'cirkelen rond je onderzoek' methodiek (25 min)
- In kleine groepen aan de slag met de aangereikte methodiek (45 min). Als casussen gebruiken we kennishiaten uit de kennisagenda revalidatiegeneeskunde
- Discussie, conclusie, 'take home messages', vinden van relevante informatie en ondersteuning (20 min)

Organisatie, sprekers en ervaringsdeskundigen:
* Organisatie en workshop moderator: dr. Esther Hosli, research coördinator VRA
* Spreker: dr. Marlies Welbie, (of een andere onderzoeker van) HU lectoraat 'Onderzoekend vermogen'
* Ervaringsdeskundigen: 5 ervaringsdeskundigen, 1 per subgroep

Maximaal aantal deelnemers aan de workshop: 50

B6 Changes in follow-up care to support optimal functioning and healthy aging after spinal cord injury

PhD Rutger Osterthun[1], MD Nora Jacobs[2], PhD Tijn Van Diemen[3], MPA Ludwine Van Orsouw[4], Drs. Willemijn Faber[5]
[1]Rijndam Rehabilitation And Erasmus Medical Center, [2]Roessingh, [3]St. Maartenskliniek, [4]Reade, [5]Heliomare

Session description

In the recent decades, more persons are aging with their spinal cord injury (SCI). These persons are prone to develop secondary health conditions, which cause an additional burden and limitations in participation. Well organized follow-up care is thus of utmost importance to meet the needs of this group.

Several aspects of follow-up care for people with SCI were revised in the past years to enable persons with SCI to maintain optimal functioning, prevent complications and to support healthy aging. This includes providing care in a network, the implementation of interdisciplinary follow-up clinics and monitoring persons with SCI with objective measurements. In this session, leading examples and scientific results of these changes in rehabilitation care will be discussed.

Learning objectives

- To learn about regional network formation
- To learn about interdisciplinary follow-up clinics
- To learn about the benefits of regular interdisciplinary follow-up clinics for health and functioning
- To learn about the added value of objective measurements in follow-up check-ups
- To learn about the importance of attention to nutrition in follow-up check-ups to improve health

Chair(s)/presenters with titles of the presentations and speakers

1) Rutger Osterthun, MD, PhD, Rijndam Rehabilitation Center and Erasmus MC, Rotterdam, the Netherlands (chair)
Title: Recent changes in epidemiological characteristics and rehabilitation care of Persons with SCI

2) Nora Jacobs, MD, Roessingh, Enschede, the Netherlands
Title: Healthcare network for spinal cord injury

3) Tijn van Diemen, PhD, St. Maartenskliniek, Nijmegen, the Netherlands
Title: Results and follow-up treatment of interdisciplinary follow-up clinics

4) Ludwine van Orsouw, MPA, Reade, Amsterdam the Netherlands
Title: Supporting a healthy lifestyle after spinal cord injury; the importance of regular outcome measurements (AMS-SCI study)

5) Willemijn Faber, MD, Heliomare, the Netherlands
Title: The role of nutrition in follow-up clinics to improve health

Outline session

1) Overview of changes in epidemiological characteristics of persons with SCI, the organization of rehabilitation care and initiatives in the past years to meet the needs of persons with SCI (12 min)

2) Description of how SCI follow-up care is organized regionally in the northeast of the Netherlands, to provide appropriate care for all persons with SCI in that region. (17 min)

3) The results of a retrospective study including 264 people with SCI attending one or more interdisciplinary follow-up clinics will be discussed. Further the added value of a questionnaire will be presented. (17 min)

4) Overview of how regular outcome measurements during and after SCI rehabilitation can be used to evaluate and adjust the treatment or simply provide motivation to adhere to the current treatment. (17 min)

5) More attention to nutrition in the chronic phase might prevent overweight but also secondary complications like neurogenic bowel problems. The first findings of research on the diet of patients with long-standing SCI will be discussed. (17 min)

6) Panel discussion (10 min)

B7 Aligning the Ankle-Foot Orthoses

Prof Noel Keijsers[1,2], Prof dr Han Houdijk[3,4], PhD, MD Viola Altmann[6,7], PhD Juha Hijmans[3], PhD Lysanne de Jong[5], MsC Mitchel van der Waard[1]
[1]Sint Maartenskliniek, [2]Radboud University / Radboudumc, [3]University medical center Groningen (UMCG), [4]University of Groningen (RUG), [5]OIM orthopedie, [6]Klimmendaal, [7]Loughborough university

To increase gait capacity, Ankle-Foot Orthoses (AFOs) are commonly prescribed in people with neurological impairment such as stroke and incomplete SCI patients. AFOs aim to minimize gait deviations by providing stability and assisting push off during stance and facilitating clearance during swing. To improve the efficacy of AFOs for optimizing gait capacity, several influential factors have been investigated. One of the most important factors is AFO alignment, which determines the orientation of the ground reaction force (GRF) in relation to the joint rotation centers. By making small adjustments to the heel height of the AFO-footwear combination or the angle between the ventral shell and footplate of the AFO, the orientation of the GRF can be manipulated until optimal AFO alignment is achieved.
The first part of this mini symposium will focus on the clinical importance and current clinical practice of AFO alignment by presenting several show cases. The second part of the symposium will focus on new technological developments that can be used to optimize AFO alignment. The validity, reliability and responsiveness of the use of inertial movement sensors in assessing Shank to vertical angle for AFO alignment will be presented. The second technological method is the automated localization of human joints in figures and videos by artificial intelligence (AI). The results of this technique in 20 patients will be presented. In the final part of the symposium, we will discuss which steps need to be taken to ensure implementation of AFO alignment in current practice of rehabilitation centers in the next three years.

Learning objectives are:
- Importance and current clinical practice of AFO alignment in rehabilitation
- New technological developments to improve AFO alignment
- How to implement AFO alignment in your clinical practice

Chair: Prof dr Noel Keijsers and Prof dr Han Houdijk
Introduction (5 minutes)
Speaker 1 (15 minutes): Viola Altmann (Klimmendaal, Loughborough):
Title: Clinical importance of AFO alignment
Speaker 2 (15 minutes): Juha Heijmans (UMCG/Beatrixoord):
Title: Current clinical practice of AFO alignment
Speaker 3 (15 minutes): Lysanne de Jong (OIM orthopedie / Sint Maartenskliniek):
Title: Use of inertial movement sensor in AFO alignment.
Speaker 4 (15 minutes): Mitchel van der Waard (Sint Maartenskliniek):
Title: Markerless AI in AFO alignment
Discussion (15 minutes): Noel Keijsers (Sint Maartenskliniek / Radboud) & Han Houdijk (UMCG/RUG)
Title: Aligning the implementation in clinical practice.

Language: English or Dutch when audience prefers Dutch

B8 Hersenstimulatie voor het verbeteren van uitkomsten van revalidatie

PhD Diana Oosterveer[1], dr. Bas Neggers[2], prof.dr. Rick Dijkhuizen[2], MSc Jord Vink[2], prof.dr. Anne Visser Meily[2]
[1]Basalt, [2]Universitair Medisch Centrum
Hersenstimulatie voor het verbeteren van uitkomsten van revalidatie

In de nieuwste richtlijn 'Herseninfarct en hersenbloeding' is een module Non-invasieve hersenstimulatie met rTMS opgenomen. rTMS staat voor repetitieve transcraniële magnetische stimulatie. In deze module wordt genoemd dat verscheidene onderzoeken suggereren dat non-invasieve hersenstimulatie het herstel na een herseninfarct of hersenbloeding kan bevorderen. Omdat er nog onvoldoende wetenschappelijk bewijs is van hoge kwaliteit, wordt het gebruik van rTMS vooralsnog nog niet aanbevolen. Door het uitvoeren van een multicenter onderzoek komt hier mogelijk verandering in. In dit mini-symposium geven we je graag de nieuwste inzichten op dit gebied mee.

Chair/presentatoren
dr. Diana Oosterveer (revalidatiearts en senior onderzoeker bij Basalt, voorzitter O&O van de WHR)
Dr. Bas Neggers (biofysicus, associate professor neuroimaging onderzoeksgroep, UMCU)
Prof.dr. Rick Dijkhuizen (hoogleraar Experimental/translational Neuroimaging, UMCU)
MSc. Jord Vink (technisch geneeskundige, PhD student, UMCU)
Prof. Dr. Anne Visser Meily (hoogleraar Revalidatiegeneeskunde, UMCU)
patiënt die deelnam aan de B-STARS

PROGRAMMA

20min: Neuroplasticiteit na een beroerte: zijn er aangrijpingspunten voor behandeling? - Prof.dr. Rick Dijkhuizen

15min: Het werkingsmechanisme van hersenstimulatie - Dr. Bas Neggers
Hersenstimulatie, oftewel repetitieve transcraniële magnetische stimulatie (rTMS) is een methode waarmee bepaalde gebieden van de hersenen met een magnetisch veld tijdelijk minder of meer actief kunnen maken.

20min: De resultaten van B-STARS monocenter onderzoek en het multicenter vervolg - Jord Vink
Een gerandomiseerde mono-center klinische trial naar de behandelingseffecten van rTMS op armfunctieherstel bij 60 patiënten met een CVA (de B-STARS studie) toonde veelbelovende resultaten: significant meer armfunctieherstel dan placebo behandeling, significant meer herstel op verschillende secundaire maten binnen de domeinen functie, activiteit en participatie en verkorting van de opnameduur.
De veelbelovende resultaten uit de monocenter trial vragen om vervolgonderzoek in de vorm van een multicenter trial, waarmee afdoende bewijs gegenereerd kan worden voor de toepassingsmogelijkheid van deze behandeling in de revalidatie. Daarvoor is recent een

subsidie toegekend via het programma ‘Veelbelovende zorg’ van Zorginstituut Nederland en ZonMW.

20min: De ervaringen van patiënten - Prof. Dr. Anne Visser Meily en een patiënt die deelnam aan de B-STARS
Anne Visser interviewt een patiënt om zo inzicht te geven in de patientervaringen van behandeling met hersenstimulatie.

15min: Discussie en vragen

Parallel Session C

C1 Innovation in cognitive rehabilitation: strengths and limitations

PhD Tanja Nijboer[1,2,3], MD Elsemiek Stehouwer[1], MSc Charlotte Van de Wouw[3], MSc Sanne Boing[3], MSc Eileen Bousche[3], PhD Hanne Huygelier[2,4]
[1]De Hoogstraat, [2]UMCU, [3]UU, [4]KU Leuven

Technology might have a positive impact in assessment and training within cognitive rehabilitation. It might advance our insight in cognitive functions and skills of patients, help finetune psychoeducation, motivate patients during training and evaluate learned compensation strategies during dynamic, interactive gameplay.

This sounds wonderful, so... how come we don't implement technology straight away?

During this mini symposium we will focus on several types of technology (digitized neuropsychological assessment, experimental cognitive tasks, Virtual and Augmented Reality) and expert opinions of both patients and therapists.

Chair: Tanja Nijboer, PhD
Presenters: Elsemiek Stehouwer, Charlotte van de Wouw, Sanne Boing, Eileen Bouche, Hanne Huyglier

Elsemiek will present (preliminary) results on patients' perspective of the current conventional pen-and-paper neuropsychological assessment (cNPA). In a survey, we collected responses of patients on their experiences with the cNPA.

Charlotte will present results of a large survey among professionals on their perspectives (and experiences) of a digitized NPA (dNPA). What are the (potential) advances, and (potential) pitfalls?

Sanne will present her work on an experimental task to assess working memory in a more ecologically valid way. Currently working memory is assessed by having patients remember all the stimuli, whereas in real life we can still rely on our environment to a certain extent. Switching back and forth between remembering and relying on the outside world might be the best strategy to function in daily life.

Eileen will focus on Virtual and Augmented Reality Serious Games in rehabilitation. What are the expert opinions on several different serious games designed for visual scan training for patients with visuospatial neglect?

Last, Hanne will talk about her research with HemiRehApp, a Virtual Reality Serious Game. In her study, 43 stroke patients with visuospatial neglect completed a neglect assessment. Associations between cNPA and new outcome measures will be discussed as well as the user experience of the patients

C2 Cocreating network care pathways and making utcome and experience measurements count: lessons learned and challenges

PhD Rutger Osterthun[1], PhD Erik Grauwmeijer[1], MSc Mildred Visser[2]

[1]Rijndam Rehabilitation And Erasmus Medical Center, [2]Erasmus School of Health Policy & Management, Erasmus University

Session description

To deliver sustainable value based rehabilitation care for all who need it, significant changes are needed to deliver the right care in the right setting at the right moment. To meet this, multidisciplinary network care pathways are developed at Rijndam Rehabilitation through action research for outpatient rehabilitation and follow-up care after acquired brain injury (ABI) and spinal cord injury (SCI). These new care pathways are cocreated with patients and network partners, such as primary care physiotherapists. Further, they are based on the four elements of value based health care: patient value, costs, organization of care and continuous improvement. During the workshop we will work on two essential themes in the development of these care pathways: how to cocreate a care pathway with patients and network partners and how to incorporate outcome and experience measurement for shared decision making and healthcare evaluation.

Learning objectives

- To learn about cocreation with patients and network partners in the development of multidisciplinary network care pathways. We will explore the added value, barriers and lessons learned in working together in the development of the care pathway.
- To learn about the organisation and added value of outcome and experience measurement for shared decision making and health care evaluation in multidisciplinary network care. We will explore the challenges we faced and goals for further development.
- To learn about implementing value based health care principles in multidisciplinary network care.

Presenters and titles

Workshop leaders

Mildred Visser, Erasmus School of Health Policy & Management, Erasmus University Rotterdam, the Netherlands

Erik Grauwmeijer, MD, PhD, Rijndam Rehabilitation and Erasmus MC, Rotterdam, the Netherlands

Rutger Osterthun, MD, PhD, Rijndam Rehabilitation and Erasmus MC, Rotterdam, the Netherlands (chair)

Titles

1. Introduction
2. Cocreation with patients and network partners in the development of multidisciplinary network care pathways
3. Outcome and experience measurement in multidisciplinary network care pathways for shared decisions-making and healthcare evaluation
4. Panel discussion

Outline session

1. Introduction (15 min)

Short introduction on action research, elements of Value Based Health Care, and the development of multidisciplinary network care pathways for persons with acquired brain injury and spinal cord injury at Rijndam Rehabilitation (15 min)

2. Cocreation with patients and network partners to develop multidisciplinary network care pathways (30 min)

Interactive session in which the formation of and working with a multidisciplinary network team will be discussed. Central theme of the session is cocreation of healthcare with patients and network partners. The added value, barriers, facilitators and lessons learned will be addressed.

3. Outcome and experience measurement in multidisciplinary network care pathways for shared decisions-making and healthcare evaluation (30 min)

Interactive session in which routine outcome and experience measurement during rehabilitation care for shared decision making and healthcare evaluation is the central theme. The added value, barriers, facilitators and lessons learned will be discussed.

4. Panel discussion (15 min)

At least one patient and one primary care provider will be invited to join the panel discussion.

C3 Predictors and outcomes for Interdisciplinary Multimodal Pain Treatment: can predictive models facilitaite shared desicion-making?

Prof Rob Smeets[1], Dr Michel Mertens[2], MSc Frederick Zmudski[3]

[1]Cir Clinics In Revalidatie and Maastricht University, research school CAPHRI and department of Rehabilitation Medicine, [2]Research Group MOVANT, Department of Rehabilitation Sciences and Physiotherapy (REVAKI), University of Antwerp, Belgium; Pain in Motion International Research Group, www.paininmotion.be, Belgium., [3]Époque Consulting and University of New South Wales, Social Policy Research Institute Centre

- Session description and learning objectives

The session starts with a brief introduction by the chair and some questions using Menti-meter (background audience, outcome measures, predictive models and machine learning; 10 minutes). Next three lectures of 20 min with 5 min of questions for clarification after each lecture, followed by a general discussion facilitated by chair using polls and voting using Menti-meter.
We also propose audio recording to later study the session and maybe use it to write an opinion-based paper and invite audience involvement.

Learning objectives:

- Critical appraisal of predictive factors and outcomes of IMPT and the relevance of predictive models
- Improve the selection of potential prognostic factors to build predictive models using logistic regression technique
- Increase awareness of the strengths and weaknesses of logistic regression models
- Improve knowledge of the potential value of machine learning predictive algorithms across multiple IMPT outcome measures to develop a prognostic patient profile
- Increase knowledge of how to use prognostic models in shared decision making and whether to start an IMPT or not
- How to use prognostic models to improve personalised assessment and patients' IMPT program engagement and goal setting

- Presentations

1. Introduction by Rob Smeets (Chair) and voting (10 minutes)

2. Presentation by Rob Smeets:
What outcome measures matter to patients, clinicians and other stakeholders to predict IMPT? And are these outcomes and their so far identified predictive factors relevant for shared decision-making?

3. Presentation by Michel Mertens:
Results of prognostic logistic models for successful IMPT provided by CIR clinics in rehabilitation while using potential predictive factors identified by literature, care-providers and patients. What are the strengths and weaknesses?

4. Presentation by Fredrick Zmudzki:

What can machine learning predictive algorithms contribute to Dutch IMPT provided at CIR rehabilitation clinics? And how can a prognostic patient profile help clinicians improve collaborative personalised IMPT assessment goal setting?

- Outline of session

IMPT is highly relevant for patients with chronic pain with high levels of disability and participation problems. However, reported effect sizes are at best moderate and variable across multiple outcome measures. To improve IMTP's effectiveness/efficacy, a personalized approach is advocated by involving the patient in shared decision making to assess whether an IMPT is warranted, and which personal outcomes are relevant. This mini-symposium discusses whether the used outcome measures in predictive modelling are clinimetrically sound, and relevant to individual patients. A synthesis of current evidence and weaknesses of identified predictive factors of successful IMPT is presented, followed by a critical appraisal of the generalizability to clinical practices. Next, the results of recently performed logistic regression modelling using factors identified from literature and a consensus meeting of researchers, clinicians, and patients is presented, followed by results from a IMPT machine learning study examining multiple prognostic outcome measures to establish a stratified patient profile. Data of 2300 patients treated with IMPT at CIR is used.
Strength and weaknesses of both modelling techniques and the impact of practical modelling decisions is discussed. Finally, we discuss how these prognostic algorithms might assist with shared decision making, goal setting, and improved patient outcomes.

C4 Ervaringsdeskundigheid in de medisch specialistische revalidatie; inclusiviteit en gelijkwaardigheid van het patiënt-perspectief

MD Annette Van Kuijk[1], Ruth Wobma[2], Marleen Kampert[1], Harmen Hidding[3], Jeroen Smale[4]
[1]Tolbrug Revalidatie / Jeroen Bosch Ziekenhuis, [2]Reade, [3]Sint Maartenskliniek, [4]Revalidatie Nederland

Samenvatting (Beschrijving van de sessie inclusief leerdoelen (maximaal 200 woorden)):
Medisch specialistische revalidatie gaat ver met een nieuw perspectief weer mee doen in je eigen omgeving. Om zicht te krijgen op dit perspectief en tegemoet te komen aan de behoefte van de unieke patiënten zijn toegankelijkheid, gelijkwaardigheid, diversiteit, en inclusie een randvoorwaarde. Vanuit het patiënt-perspectief kan de ervaringsdeskundige ons daarbij helpen.

Op 7 juni organiseerden VRA en RN met ervaringsdeskundigen en onderzoekers de studie- en intervisiebijeenkomst “Ervaringsdeskundigheid in de revalidatie: oriëntatie, inspiratie en motivatie?!” Deze bijeenkomst stond in het teken van de meerwaarde van ervaringsdeskundigheid in de medisch specialistische revalidatie en was bedoeld voor ervaringsdeskundigen, behandelaren, revalidatieartsen, bestuurders, managers en beleidsmakers in de revalidatie.
Deze workshop is stap 2: indien je als revalidatiearts overtuigd bent van de meerwaarde, hoe kun je dan de kennis en ervaring van (voormalige) patiënten het beste in het behandeltraject gebruiken, welke vormen bestaan er en waarmee krijg je dan te maken?

Leerdoelen
Na afloop van de sessie hebben deelnemers
- Kennis van de toegevoegde waarde van ervaringskennis voor de patiënt
- Kennis van de verschillende vormen van ervaringsdeskundigheid
- Kennis wat nodig is voor om goed je plek als ervaringsdeskundige te kunnen vinden
- Eerste idee wat nodig is voor implementatie in eigen regio

Voorzitter en presentatoren met titels van de presentaties (max 200 woorden)
- Annette van Kuijk, Voorzitter. Welkom en inleiding
- Ruth Wobma: Ervaringsdeskundigheid vanuit wetenschappelijk perspectief.

Ruth Wobma bespreekt aan hand van korte film van Vilans en haar eigen promotieonderzoek, wat ervaringsdeskundigheid toevoegt vanuit het perspectief van de revalidant en welke verschillende vormen van ervaringsdeskundigheid er zijn
- Harmen Hidding en Marleen Kampert: Ervaringsdeskundigheid vanuit het perspectief van de ervaringsdeskundige binnen de medisch specialistische revalidatie

Marleen Kampert (ervaringsdeskundige Tolbrug) en Harmen Hiddink (ervaringsdeskundige Sint-Maartenskliniek) gaan vanuit het perspectief van de ervaringsdeskundige in op wat nodig is om goed je plek als ervaringsdeskundige te kunnen vinden.
- Ruth Wobma: Ervaringsdeskundigheid diversiteit en complexiteit bij implementatie

Beschrijving van de sessie (maximaal 200 woorden)
- Eerste 40 minuten presentaties: Informatief (zie presentaties)
  - Welkom
  - Ervaringsdeskundigheid vanuit wetenschappelijk perspectief

o Ervaringsdeskundigheid binnen de medisch specialistische behandeling
o Ervaringsdeskundigheid diversiteit en complexiteit bij implementatie in je eigen centrum

- Daarna 20 minuten werksessie uit elkaar in groepen (Annette, Ruth, Jeroen). In deze groepen wordt met elkaar nagedacht en ervaringen uitgewisseld aan de hand van de opdracht: Ervaringsdeskundigheid: Waarom zou ik dat doen in mijn centrum, met wie en hoe zou het er dan uit kunnen zien.
Aantal groepen is afhankelijk van het aantal deelnemers. Gestreefd wordt naar groepen van maximaal 10 personen. Kijken of we kunnen achterhalen wie deelnemers zijn en deze clusteren in regio zodat potentiële samenwerkings- / ontwikkelgroepen kunnen ontstaan.

- 25 minuten werksessie plenair (Ruth)
Uitwisselen uitkomsten groepen. Ophalen opbrengsten groep: tips en ideeën; uitdagingen die aangepakt moeten worden.

- 5 minuten Rode draad en afsluiting (Annette)
perspectief hoe verder op proces vanuit VRA en RN

Toegevoegde waarde voor patiënten
De workshop is er nadrukkelijk op gericht om goede voorbeelden uit te wisselen en van elkaar te leren. Hoe maken we samen de inzet van ervaringsdeskundigheid in de revalidatie tot een succes.
De insteek tijdens de DCRM is die van het gezichtspunt van de revalidatiearts, maar met het perspectief van de revalidant.
Parallel aan de DCRM organiseren we een tweede brede bijeenkomst over de organisatorische voorwaarden om ervaringsdeskundigen een passende positie te geven binnen de revalidatie. Het voornemen is om als uitkomst van dit proces een syllabus ‘De ervaringsdeskundige in de revalidatie in breder perspectief’ te verspreiden onder de revalidatie instellingen. Een conceptversie daarvan is reeds hier beschikbaar.

C5 Equality, Equity and Social Justice: Strengthening Rehabilitation Practice in the Netherlands through Global Health

MD Alicia Lucardie[1,2], Prof. dr. Jan Willem Gorter[3], Jos Metselaar[4], PT Karin Schepman[1,5], MD Marga Tepper[1,6]
[1]VRA Werkgroep Transculturele Revalidatie (WTcR), [2]Adelante, [3]UMCU, [4]Broadview Changing Perspectives, [5]FHHRO | Medical Human Rights Network, [6]UMCG

Session Description

Have you ever wondered why global health is relevant to rehabilitation care? Or how global health concepts and systems thinking can be used to strengthen rehabilitation care in the Netherlands?

Global health is relevant to rehabilitation care in the Netherlands, because it provides a broader perspective on the social, economic and environmental determinants that can impact rehabilitation health outcomes. Systems thinking, in turn, helps us to embrace the inherent complexity of these factors. Many health issues are interconnected and cannot be addressed in isolation. The analysis of the interdependence of these determinants leads to new insights into how global health can be promoted and health disparities can be reduced (Faerron Guzman, 2018). Did you know that, in general, healthcare systems contribute only 20% to the overall health of a population?

In this mini-symposium, we will focus on topics such as health equity, equality and social justice and how these topics impact your daily rehabilitation practice. For example, did you know that people who fall into low income groups enjoy 15 years less in good health? Or, do you think that children with disabilities have the same opportunities to participate in the Netherlands? Divided into expert groups, we will discuss and tackle four topical issues in rehabilitation medicine in the Netherlands, and attempt to come up with possible solutions, using concepts related to both systems thinking and global health.

Learning Objectives

- Awareness of the social determinants of health
- Awareness of health equity and equality and social justice
- Understand the value of health equity and equality and how it can be used as a fundamental basis for rehabilitation care in the Netherlands

Outline Session

1. Welcome and Introduction (5 min) - Jan Willem Gorter, chair
2. From Global Health to Rehabilitation Medicine for all in the Netherlands: Thorny truths (20 min) - Alicia Lucardie
3. Systems Thinking - Why does it matter? (20 min) - Jos Metselaar
4. Expert discussions in four groups - Rehabilitation medicine for all: reality or fiction in Dutch daily practice? (40 min) - Jan Willem Gorter, Alicia Lucardie, Jos Metselaar, Karin Schepman, Marga Tepper
5. Closing Remarks (5 min) - Jan Willem Gorter

C6 Dance as medicine

MD Anandi Van Loon-felter[1], Drs Wya Feenstra[2], Marlies Seinstra[3], Yentl Smeets[4]
[1]Lucia Marthas Insititute For Performing Arts / Hand en Pols Revalidatie Nederland, [2]Revalidatie Friesland, [3]Generatiehuis en Dans op Recept, [4]Lucia Marthas Institute for Performing Arts
Presentation type: mini symposium, 1,5 hours
Presenters and affiliations:
Drs. A.E. van Loon-Felter – rehabilitation doctor- Hand en Pols Centrum, coordinator health LMIPA (Lucia Marthas Insititute for Performing Arts)
Drs. W. Feenstra- rehabilitation doctor – Revalidatie Friesland
Mw. M. Seinstra – choreograaf, Directeur Generatiehuis en Dans op Recept
Dhr. Y. Smeets – dansdocent, afgestudeerd LMIPA, docent Zang- Toneel- en Dansacademie Daan Theeuwes i.s.m. Lucia Marthas.

Abstract:
Dance is an art form. More and more is known about dance as medicine. And how to use dance for health. It fits perfectly in the theme 'Rehabilitation for all: equality and inclusivity' .
“Dans op Recept” has won the &award in 2020 of “Code diversiteit & inclusie” (https://codedi.nl/inspiratie-tips/winnaars-awards-2020-bekendgemaakt)
In this mini-symposium we will introduce this topic and talk about how dance can be used in daily practice for different patient categories (NAH, Parkinson, chronic pain, MS, dementia).
Learning objects:
After this mini-symposium the participants are aware of the evidence for dance as medicine and have information how it can be used in a rehabilitation program, and maybe be inspired to implement it themselves. They can also inform and advise patients to join dance classes or join projects outside the rehabilitation center where dance is used as medicine. They will also have experienced themselves in an interactive dance session what the added value of dance can be.

Content:
1. Anandi van Loon-Felter
General introduction to topic (5 min)
2. Wya Feenstra
Evidence of dance in acquired brain injury / results of current research with Revalidatie Friesland (25 min)
3. Marlies Seinstra
“Dans op Recept”- https://dansoprecept.nl/
She will talk about “dans op recept”, give insights about vision projects like “dans op recept”, inclusion dance in general (25 min)
4. Dance performance (10 min)
Solo created by a participant of chronic pain dance group.
5. Yentl Smeets
Honours student – Dance teacher LMIPA will talk about his role in the project for Zang- Toneel- en Dansacademie Daan Theeuwes i.s.m. Lucia Marthas. He will give an interactive session and let the participant experience how dance can be done by everybody (25 min)

C7 Implementation of the guideline ICU aftercare &rehab guideline; how do we make this guideline work in daily practice?

PhD Marike Van Der Schaaf[1,2], MD, PhD Chantal Bakker[3], PA Germijn Heijnen[4], to be announced to ben announced
[1]Amsterdam Umc, department of Rehabilitation medicine, [2]Amsterdam University of Applied Sciences , [3]Máxima Medisch Centrum , [4]UMCU, department of Rehabilitation, Physiotherapy Science & Sport
Survivors of Intensive Care (ICU) can experience problems in daily functioning for years. The problems directly attributable to ICU admission have been described since 2012 with the umbrella term 'Post Intensive Care Syndrome' (PICS). PICS has been defined as new or worsening problems in the physical, mental and/or cognitive domain, which arise after experiencing a critical illness and which persist after a stay in an ICU (Needham, 2012). Family members of ICU patients can also experience mental complaints: PICS varies widely from 25 to 80% depending on the population studied.

In 2022, the FMS guideline After Care and Rehabilitation of Intensive Care Patients was published under the chairmanship of the VRA and Nederlandse Vereniging voor Intensive Care (NVIC). This guideline provides recommendations on interventions to prevent, decrease and treat symptoms of PICS and PICS-Family during and after ICU stay.

In order to optimize the functional recovery of patients with PICS, the objective of this workshop is to present -in brief- the content of the guideline After Care and Rehabilitation of Intensive Care Patients, to provide participants with practical tools for implementing the recommendations in their daily practice and to make a first move towards a 'treatment framework' (Dutch: behandelkader) for Rehabilitation of PICS.

Learning objectives
At the end of this workshop, participants:
• Have insight in the guideline recommendations related to rehabilitation
• Are provided with a tool to implement the guideline in their own setting.
• Have discussed common implementation issues for the rehabilitation of PICS such as rehabilitation goals, and the responsibility and expertise of team members.

This interdisiciplinary workshop will be presented by Dr. Marike van der Schaaf (physiotherapist, senior researcher). Dr. Chantal Bakker (rehabilitation physician), Germijn Heijnen (physician assistent) and an intensivist (name will be announced soon).

Outline of the session
• Welcome and introduction of the workshop, the implications of PICS for daily functioning, and the guideline After Care and Rehabilitation of Intensive Care Patients. (30 min).

• Group discussions: participants will be divided into groups to discuss current rehabilitation practice in relation to the guideline recommendations. A format will be provided to structure the session for discussing common implementation issues. Within these discussions, essential components of rehabilitation care, the multidisciplinary team, treatment activities and responsibilities will be discussed (30 min).

• Plenary presentation of results of the group discussions.
Pitches of the main results by each group according to the provided format.
The results serve as a starting point for the implementation of the guideline in participants' own setting, as well for the development of a treatment framework (behandelkader) PICS that will be developed by the VRA Working group IC Rehabilitation (WICR) (20 min).

• Wrap up and conclusions: How do we turn this guideline into reality? (10 min)

C8 Selectieve neurectomie voor functionele behandeling van spasticiteit in de onderste extremiteit: eerste ervaringen in Nederland.

PhD Hanneke Van Duijnhoven[1], MD Erkan Kurt[2], MD Danique Ploegmakers[1,3], MSc Jean Ormiston[3], PhD Tim de Jong[4], PhD Jorik Nonnekes[1,3]
[1]Raboudumc, department of Rehabilitation, [2]Radboudumc, department of Neurosurgery, [3]Sint Maartenskliniek, [4]Radboudumc, department of Plastic Surgery

Dit mini symposium richt zich op de functionele behandeling van spasticiteit in de onderste extremiteit met behulp van selectieve neurectomie, een behandelingsmethode die nog weinig wordt toegepast in Nederland. In deze sessie gaan we in op de indicatiestelling met selectieve zenuwblokkade en de chirurgische techniek van de selectieve neurectomie, zoals die in het Radboudumc in Nijmegen wordt uitgevoerd. Vervolgens zullen we de resultaten bespreken van een systematische review van de literatuur. Tenslotte presenteren we de eerste resultaten van een studie naar de effecten van selectieve neurectomie op zelfgekozen loopdoelen en de eerste patiëntervaringen.

Programma:

- Hanneke van Duijnhoven: indicatiestelling middels functionele diagnostiek en selectieve zenuwblokkade (15 minuten)
- Erkan Kurt: chirurgische techniek van selectieve neurectomie van de onderste extremiteit (15 minuten)
- Danique Ploegmakers: systemische review van de literatuur over selectieve neurectomie voor de behandeling van spasticiteit in de onderste extremiteit (15 minuten)
- Jean Ormiston: Effectiviteit van selectieve neurectomie op zelfgekozen loopdoelen: de eerste resultaten en ervaringen van patiënten. (30 minuten)
- Discussie en gelegenheid voor het stellen van vragen (15 minuten)

Leerdoelen:

- Inzicht in de indicatiestelling van selectieve neurectomie voor de functionele behandeling van spasticiteit in de onderste extremiteit.
- Inzicht in de chirurgische techniek van selectieve neurectomie
- Inzicht in huidige stand van de wetenschap van selectieve neurectomie van de onderste extremiteit
- Kennis van eerste resultaten en ervaringen van patiënten na selectieve neurectomie ter verbetering van loopproblemen.

Parallel Session D: PhD thesis session and debate

D1. PhD thesis session: Presentations of the best PhD theses in the Netherlands

Chair: *prof. Sander Geurts MD*

During the DCRM 2023 in 's-Hertogenbosch the best PhD theses in the field of rehabilitation medicine in the academic year 2022-2023 are presented. Afterwards the jury will select the winner of the PhD Award Rehabilitation Medicine 2023.
The PhD Award Rehabilitation Medicine is a prize awarded annually for the best and most appealing doctoral thesis in the field of rehabilitation medicine in The Netherlands. The aim of this prize is to value and further high-quality research and to put the researchers into the limelight.

- The three nominees for the prize are (in alphabetic order):
  Jochem Helleman
- **Saskia Houwen**
- **Samantha Rozevink**

Jochem Helleman Using telehealth to optimize care for people with a motor neuron disease: the digital road to perzonalized care

This thesis investigates the utilization of telehealth in multidisciplinary care for people with Motor Neuron Disease (MND) and the development of strategies for remote patient monitoring. Despite telehealth's proven potential to improve clinical outcomes and patient self-management, its integration in MND care remains limited. This thesis shows that telehealth, including remote interactions with multidisciplinary teams, benefits MND patients across different disease stages, enhancing care continuity and accessibility, particularly when physical travel is challenging.

Personalized care, adaptable to patients' evolving needs, is a focus for telehealth services. Implementation barriers include costs, reimbursement, patient attitudes, and healthcare professionals' acceptance. Solutions involve centralizing telehealth platforms, ensuring proper reimbursement, and fostering positivity among healthcare professionals and patients.

The need for remote monitoring of respiratory function is emphasized, highlighting vital capacity and dyspnea symptoms as suitable outcome measures. Optimizing adherence to remote monitoring is promoted by personalized feedback and user-friendly devices, while proper implementation of these remote outcome measures are facilitated by developing standardized assessments and a centralized telehealth platform. Furthermore, collaboration among healthcare institutions, adherence to implementation frameworks, and cost-effectiveness evaluations are recommended for widespread telehealth adoption.

The study also underscores the importance of training the next generation of healthcare professionals in telehealth and personalized care, driving successful healthcare digital transformation. This research offers valuable insights into enhancing MND care through telehealth and remote monitoring, improving patient outcomes, and ensuring equitable care access.

Jochem Helleman started his academic journey in 2012 when he started the Bachelor Human Movement Sciences at the Vrije Universiteit Amsterdam, and obtained his master's degree in Human Movement Sciences in 2016. During his masters he conducted a research study on the mobility of wheelchair basketball players, which resulted in a published research paper and his first co-authorship. In 2017 he started his PhD at the University Medical Center in Utrecht on the project 'ALS Home-monitoring and Coaching'. During his PhD Jochem presented his research on national and international conferences, as well as open days that were organized for and attended by patients with ALS and their caregivers. Currently Jochem is working as a Product Owner at Heart for Health where he works together with a team of developers, testers and consultants, aimed at developing mobile applications for home-monitoring of cardiology and diabetes patients.

Saskia Houwen - Duchenne muscular dystrophy: Future perspectives

Duchenne muscular dystrophy (DMD) is an X-linked, progressive neuromuscular disorder involving many bodily functions and in which the disease progression is constantly changing due to new medical developments. The disease occurs mainly in men, but women can also have symptoms to a greater or lesser extent. Increasing life expectancy has created a new, relatively unknown population of adults with Duchenne muscular dystrophy. In this thesis we aimed to understand more of the challenges people with Duchenne Muscular Dystrophy face during disease progression and the impact on daily activities and participation. The following topics were covered: symptoms in different disease stages, women with dystrophinopathy, weight progression and muscle shortening. In addition, this dissertation describes how care in the Netherlands meets international standards of care and existing interventions (the use of hand splints and foot surgery) were examined.

Due to this thesis, clinicians have more tools to support persons with DMD during their life course en social participation.

Saskia Houwen is a paediatric rehabilitation physician at Amalia Children's Hospital, Radboudumc. Her clinical work is focused on children with neuromuscular diseases, and on adults with a dystrophinopathy. She is also PI on several clinical trials for children with Duchenne Muscular Dystrophy. She defended het PhD thesis on the 27th of June 2023. Besides her clinical and research tasks, she is a board member of Duchenne Center of the Netherlands and the Neuromuscular task force of the Dutch rehabilitation association. At last, she is medical advisor of the patient advocacy group for people with dystrophies. She lives in Nijmegen with het husband and three wonderful sons.

Samantha Rozevink - Task-specific training methods to improve the upper limb function in stroke survivors

The beds in the rehabilitation center are full and the schedules of the therapists are overloaded. Sounds familiar? Therefore, we need to find efficient ways to provide training to stroke patients. Task-specific training is necessary to improve the upper limb function after stroke, fortunately there are different ways to incorporate this in training. This thesis describes two methods of providing task-specific training, group training and home training, to train the upper limb function with minimal therapist resources.

We developed a circuit class group training involving activities of daily life. The training resulted in a lower workload for therapists and a practical training for patients. When a patient returns home, training must continue to prevent non-use of the arm. Therefore, a home-based training program using an assistive device and telerehabilitation system was investigated. Patients significantly improved their upper limb function, improvement was even retained six months after training. These results showed the added benefit of assistive device training. Patients found this way of training enjoyable, however several device flaws were encountered.

We showed that group training and assistive device training result in clinically meaningful improvements in upper limb function after stroke and can therefore be a useful addition to rehabilitation programs. The thesis can be found here.

Samantha Rozevink (19-09-1995) completed the bachelor and research master Human Movement Sciences at the Vrije Universiteit in Amsterdam between 2013 and 2018. In January of 2019 she started as a junior researcher on the MERLIN project at the University Medical Center in Groningen at the department of Rehabilitation Medicine. After 1,5 years, this function was converted to a full PhD position where she continued to investigate different methods to provide task-specific training to stroke survivors to improve their upper limb function. She defended her thesis on the 22nd of March 2023, at the Rijksuniversiteit Groningen. In January 2023, she started her post-doc at the department of Human Movement Sciences in Groningen, where she focusses on using virtual reality for the training of upper limb myoelectric prosthesis control. Furthermore, she assists in teaching the 1st year bachelor course motor control at the department.

D2. Debat

This session will be held in Dutch.
Digitalisering van de revalidatiezorg: kan iedereen het nog bijbenen?
De alsmaar groeiende digitalisering kan bijdragen aan efficiënte en effectieve zorg. Je kan steeds meer dingen voor je gezondheid regelen met een computer of mobiele telefoon. Digitale zorg, of eHealth, wordt normaler. E-Health biedt kansen om preventie en zorg te verbeteren. En om patiënten zelf meer controle te geven over hun gezondheid en over de zorg die zij nodig hebben. Maar alleen als iedereen die e-Health kan gebruiken. De praktijk blijkt anders te zijn: bijna 1 op de 5 mensen boven de 12 jaar is ‘beperkt digitaal vaardig’ en hebben dus moeite met het gebruik van computer en internet (cijfers Pharos). Een grote groep mensen, welke ook binnen de revalidatiezorg zijn vertegenwoordigd.

Hoe inclusief en toegankelijk is de digitale gezondheidszorg? En hoe ga je als zorgverlener om met de patiënten die digitaal niet (zo) vaardig zijn? En ben je als zorgverlener zelf digitaal vaardig (genoeg) om patiënten hierin te kunnen begeleiden? Is het een onderwerp dat vanuit de opleiding tot revalidatiearts aan bod komt?
Tijdens dit interactieve debat gaan we in gesprek met experts op dit onderwerp, patiënten vertegenwoordigers, revalidatieartsen en een aios revalidatiegeneeskunde.

Doel:

- Bewustwording van het probleem van digitale exclusie (dmv aanwezigheid patiëntenvertegenwoordigers op dit gebied)
- Aanwezigen handvatten bieden hoe om te gaan met patiënten die digitaal beperkt vaardig zijn
- Levendige discussie met aanwezigen

Debatleider is **Hans Oosterkamp.**

Parallel Session E

E1 Aan de slag met duurzaamheid!

MSc Maaike De Koff[1], Dr. Joris de Graaf[2], MSc Anne Roosendaal[3]
[1]Revant, [2]UMC Utrecht, [3]De Klimaatdokter

Dat de gevolgen van klimaatverandering negatief effect hebben op de gezondheid van mensen wordt steeds duidelijker zichtbaar. De Nederlandse gezondheidszorg is verantwoordelijk voor 7% van de totale CO2-uitstoot in ons land en heeft hiermee flinke invloed op die klimaatverandering. Dit noemen we de 'gezondheidsparadox': de uitstoot van de gezondheidzorg maakt mensen ziek. Dit geeft een behoorlijke urgentie de zorg te verduurzamen! Ook binnen de revalidatiesector moeten we hiermee aan de slag. Het Groen Revalidatie Netwerk van de VRA en RN wil de verduurzaming binnen de revalidatiesector versnellen en faciliteren. Tijdens het DCRM van 2021 werd een workshop over dit thema gegeven, nu is het tijd voor een vervolg gericht op actie!
Welke invloed kunnen we gezamenlijk als zorgprofessionals uitoefenen om de revalidatiezorg te verduurzamen? En hoe kunnen we de ongunstige effecten op de gezondheid van onze patiënten verminderen? En, wat kan je zelf als individu doen?
Tijdens de workshop gaan we deze vragen met elkaar beantwoorden, een aantal goede voorbeelden binnen revalidatiesector met elkaar delen én concrete stappen zetten om deze ook tot werkelijkheid te maken. Het zal een praktische sessie worden waarbij de nadruk ligt op actie!

Chair(s)/presenters with titles of the presentations and speakers (max 200 words)
De workshop zal worden geleid door leden van het Groene Revalidatie Netwerk.
-Opening en korte introductie duurzaamheid in de zorgsector, en update inspanningen Groene Revalidatie Netwerk - Joris de Graaf, revalidatiearts UMC Utrecht
-Hoe ga je aan de slag? Van groene zorgen naar groene dokters - Maaike de Koff, revalidatiearts Revant en Anne Roosendaal, De Klimaatdokter
- Groene voorbeelden ter inspiratie: korte pitches van zorgverleners die recent een duurzaam idee in de praktijk hebben gebracht (sprekers nog niet bevestigd)
-Aan de slag! We gaan in groepjes uiteen om concrete plannen op te stellen.
-Afsluiting – Joris de Graaf en Maaike de Koff

Outline session (max 200 words)
Deze workshop zal uw inzicht in het thema duurzaamheid in de zorg vergroten. Maar als belangrijkste, u heeft aan het einde van de workshop concrete handvatten om aan de slag te gaan met het verduurzamen van de revalidatiesector, uw eigen instelling en/of uw eigen dagelijkse werk. Het zal een praktische sessie worden waarbij de nadruk ligt op actie!

E2 GAIT SCRIPT innovatie van klinische gangbeeldanalyse bij kinderen met cerebrale parese met behulp van de GAIT SCRIPT interpretatietool.

MD Sarah Dekker[1], Drs Koen Wishaupt[1], Dr. Marjolein van der Krogt[1], Prof dr Han Houdijk[1], Prof dr Annemieke Buizer[1]
[1]Reade en Amsterdam UMC

Doel workshop
Deelnemers krijgen een korte opfris cursus met betrekking tot klinische gangbeeldanalyse. Na een snelle introductie van de terminologie leren de deelnemers het concept achter de Impairment Focussed Interpretation (IFI) methode1. Deze methode vormt de basis voor de GAIT.SCRIPT interpretatie tool, die kan worden gebruikt als hulpmiddel voor een uniforme en transparante beoordeling van klinische gangbeeldanalyse van kinderen met cerebrale parese (CP). In deze workshop zullen deelnemers op actieve wijze kennismaken met deze tool.

Leerdoelen
1. Deelnemer kent de basisterminologie van klinische gangbeeldanalyse
2. Deelnemer kent het concept achter de Impairment Focussed Interpretation (IFI) methode
3. Deelnemer kent een systematische manier om klinische gangbeeldanalyse te interpreteren
4. Deelnemer kan de GAIT.SCRIPT interpretatie tool toepassen als hulpmiddel bij het interpreteren van klinische gangbeeldanalyse bij kind met cerebrale parese

Opzet workshop (totale duur 90 minuten)
1. Plenaire presentatie (20 minuten)
- Kennis opfrissen; hoe beoordelen we een klinische gangbeeldanalyse ook alweer?
- Impairment Focused Interpretatie: de ontwikkeling van een systematische werkwijze voor de interpretatie van klinische gangbeeldanalyse van kinderen met cerebrale parese
- De GAIT.SCRIPT interpretatietool: demonstratie werkwijze, ontwikkeling van de web-based applicatie
2. Interactieve deel (40 minuten)
- Deelnemers beoordelen zelfstandig een gangbeeld analyse aan de hand van de GAIT.SCRIPT tool
3. Interactieve nabespreking gangbeeldanalyse en gebruik interpretatietool (20 min)
- Speciale aandacht voor verzamelen gebruikers ervaringen, feedback op de tool
4. Plenaire nabespreking: vooruitblik naar de toekomst van GAIT.SCRIPT (10 minuten)
- Stimuleren uniformeren landelijke werkwijze
- Opzet landelijke validatiestudie

Doelgroep
Kinderrevalidatieartsen, AIOS, gangbeeldlaboranten, bewegingswetenschappers, fysiotherapeuten, orthopedisch instrumentmakers en andere professionals betrokken bij klinische gangbeeldanalyse voor kinderen met cerebrale parese.

Taal
Nederlands. Indien nodig kan de workshop in het Engels worden gegeven.

Maximum aantal deelnemers
Maximaal 30 deelnemers.
NB casuïstiek gangbeeldanalyse en de noodzakelijke interpretatietool worden ter plekke aan de deelnemers verstrekt. Deelnemers dienen hiervoor een eigen laptop tot hun beschikking te hebben

Achtergrond
Binnen de kinderrevalidatiegeneeskunde worden veel kinderen met cerebrale parese (CP) behandeld om hun loopfunctie te verbeteren. Deze kinderen ervaren vaak problemen in hun dagelijks leven, waaronder functionele beperkingen in het lopen door een afwijkend looppatroon. Om deze problemen kwantitatief en objectief in kaart te brengen, wordt gebruik gemaakt van klinische gangbeeldanalyse. Hoewel de gangbeeldanalyse zich ontwikkelt tot een volwaardige expertise binnen de (kinder)revalidatie, bestond er tot op heden geen uniforme werkwijze2.

Door middel van een Delphi studie is vrij recent door een Nederlandse expertgroep van revalidatieartsen, bewegingswetenschappers en fysiotherapeuten een lijst met 118 koppelingen tussen gangbeeldafwijkingen en verklarende onderliggende stoornissen opgesteld, inclusief waarschijnlijkheid scores23,4. Deze koppelingen zijn gebaseerd op Impairment Focused Interpretation methode (IFI)1 gecombineerd met klinisch en biomechanisch redeneren.

Op basis van deze lijst koppelingen is de GAIT.SCRIPT interpretatie tool ontwikkeld. In november 2022 won dit onderzoeksproject de Revalidatie jaarprijs voor Innovatieve Patiëntenzorg5; met het door IPSEN Farmaceutica hieraan verbonden bedrag hebben wij de overstap van een Excel format naar een web-based applicatie kunnen maken. In deze workshop laten wij de deelnemers kennis maken met een wetenschappelijk onderbouwde manier om de klinische gangbeeldanalyse te interpreteren met behulp van de door ons ontwikkelde GAIT.SCRIPT interpretatietool.

Toegevoegde waarde voor de patiënt

In het dagelijks functioneren ervaren kinderen en jongeren met cerebrale parese vaak loopproblemen, variërend van een afwijkend looppatroon, tot vaker vallen, struikelen, vermoeidheid en verminderde loopafstand ten opzichte van hun gezonde leeftijdsgenootjes. Deze groep verdient een goede behandeling van hun loopprobleem zodat zij zo optimaal mogelijk kunnen meedoen in het dagelijks leven. Een gedegen en systematische interpretatie van de gangbeeldanalyse is het uitgangspunt om tot een goed behandeladvies te kunnen komen.

E3 Patiëntenparticipatie in revalidatieonderzoek

PhD Diana Oosterveer[1], Vera Verhage[2], MSc Eva Vroonland[3], Ingrid de Groot[4], dr. Marjolijn Ketelaar[5]
[1]Basalt, [2]Klimmendaal, [3]PGOsupport, [4]OMERACT, [5]de Hoogstraat

SESSION DESCRIPTION

Veel onderzoekers willen patiënten betrekken, maar vragen zich af hoe je dat doet. In deze workshop leren deelnemers wat de meerwaarde is van patiëntenparticipatie in revalidatieonderzoek, en daarnaast hoe ze dit kunnen toepassen in de praktijk. Er is mogelijkheid om hier gelijk mee aan de slag te gaan.

Chair/Presenters and affliations

dr. Diana Oosterveer (revalidatiearts en senior onderzoeker, Basalt)
Vera Verhage (patiënt-lid wetenschapscommissie Klimmendaal)
MSc Eva Vroonland (adviseur patiëntenparticipatie bij PGOsupport)
Ingrid de Groot (patiënt met dermatomyositis, voorzitter Myositis werkgroep Spierziekte Nederland, Patient Research Partner OMERACT)
Dr. Marjolijn Ketelaar (senior onderzoeker kinderrevalidatie, de Hoogstraat/UMCU)

PROGRAMMA

5 min: Introductie Diana Oosterveer
Waarom is patiëntenparticipatie belangrijk, het perspectief van de revalidatiearts.

10 min: De “theorie” achter patiëntenparticipatie en ervaringen Vera Verhage
Patiënten hebben unieke kennis en ervaringen die kunnen bijdragen aan betere zorg en beter kwaliteit van onderzoek. Wat de meerwaarde van het patiëntenperspectief, methodes en welke ervaringen Vera heeft zullen aan bod komen.

15 min: Betrekken van patiënten in onderzoek: verschillende fases en rollen Eva Vroonland
Patiënten kunnen bijdrage aan onderzoek op verschillende momenten en manieren. Elke fase van onderzoek biedt kansen voor samenwerking op verschillende onderwerpen. Bovendien zijn er verschillende rollen van participatie. Eva neemt je mee in de kansen voor participatie in elke fase van onderzoek, en welke rollen van participatie er zijn.

15 min: OMERACT: Een voorbeeld van gelijkwaardige samenwerking. Ingrid de Groot
Hoe werk je als patiënt gelijkwaardig samen met onderzoekers? Hoe selecteer en definieer je uitkomstmaten vanuit het patiëntenperspectief? Ingrid legt het OMERACT initiatief uit, waar patiënten en onderzoeker samen op zoek gaan naar uitkomstmaten, die de gevolgen van Myositis op het dagelijkse leven weergeeft.

15 min: Samen patiëntenparticipatie vormgeven Marjolijn Ketelaar
Welke patiënt betrek je en op welk moment? Om patiëntenparticipatie vorm te geven is als hulpmiddel de participatiematrix ontwikkeld, waar patiënten en onderzoekers samen het gesprek aan gaan over de rol gedurende een onderzoek of project. Welke rol past bij welke patiënt in welke fase van onderzoek? Dit is mede afhankelijk van de wensen en ervaringen, en kan bovendien variëren gedurende het onderzoek.

20 min: ‘Hands-on sessie’
Aan de slag met patiëntenparticipatie. In welke fase van je project of onderzoek wil je patiënten betrekken? In welke rol? Welke methode wil je toepassen? Waar vind je je patiënten?
Afhankelijk van het aantal deelnemers kan hier over nagedacht worden in groepjes of individueel, gevolgd door een plenair moment.

10 min: Discussie, ervaringen uitwisselen en vragen

E4 Electrical stimulation to improve function and reduce secondary complications in people with spinal cord injury

MD Ilse Van Nes[1,2], Prof. dr. Thomas Janssen[3,4], Boas Wijker[3], Dr. Tamsyn Street[5]
[1]Sint Maartenskliniek, [2]Radboudumc, [3]Vrije Universiteit, [4]Reade, Center for Rehabilitation and Rheumatology, [5]Salisbury NHS Foundation Trust
Session abstract

The use of electrical stimulation (ES) after spinal cord injury (SCI) has been utilized for over half a century. One of the earliest applications was stimulation of peripheral nerves to initiate muscle function. Since then, various types of ES have been developed for several types of application as FES (functional electrical stimulation), TENS (transcutaneous electrical nerve stimulation) and, more recently, spinal cord stimulation.

During this mini-symposium we will give an overview of applications of ES in people with SCI. First, the use of peripheral FES to prevent or reduce secondary complications is discussed, starting with using ES for pressure sore prevention (including results from the SCI-PREVOLT study, followed by using ES to reduce bowel problems.

Second, the results of the international multicenter UpLift study on the safety and effectiveness of noninvasive spinal cord stimulation to improve hand function in patients with chronic tetraplegia will be presented. The possibilities of invasive spinal cord stimulation in the prevention of secondary complications will also be mentioned.

Next, the first attempts to combine peripheral (using the Teslasuit) with spinal cord stimulation to improve arm and leg function will be discussed.

We will finish this mini symposium with a general panel discussion.

Chairs:
Dr. Ilse van Nes, MD PhD rehabilitation physician, Rehabilitation center St Maartenskliniek Nijmegen, the Netherlands
Prof. Dr. Thomas Janssen, Vrije Universiteit Amsterdam, and Reade, Center for Rehabilitation and Rheumatology, Amsterdam, the Netherlands

Presenters:
Ilse van Nes
Prof. Dr. Thomas Janssen
Boas Wijker, PT, Department of Movement Sciences, Vrije Universiteit Amsterdam, the Netherlands
Tamsyn Street, PhD, Research Fellow at Salisbury NHS Foundation Trust, Salisbury, UK.

Learning objectives:
1. Learn how electrical stimulation can be used to reduce secondary complications after spinal cord injury
2. Learn how t electrical stimulation can be used to improve hand and leg function after spinal cord injury.

Programma outline

1. Introduction (Ilse van Nes) 5 minutes
2. Electrical stimulation to prevent pressure ulcers (Boas Wijker): 15 minutes
3. Electrical stimulation to reduce bowel problems (Tamsyn Street). 20 minutes, including questions
4. The safety and efficacy of noninvasive spinal cord stimulation in the treatment of upper extremity function (Ilse van Nes): 15 minutes
5. Combining FES and spinal cord stimulation to improve hand and arm function after spinal cord injury (Thomas Janssen): 15 minutes
6. Discussion (20 minutes)

E5 Blessurepreventie op maat voor sporters met een fysieke beperking

MSc Vera van Reuler[1], MSc Sietske Luijten[2]
[1]Reade, [2]Amsterdam UMC locatie VUmc

In dit mini-symposium wordt de deelnemer bewust gemaakt van het belang van blessurepreventie voor mensen met een fysieke beperking. Een sporter zal het symposium aftrappen met zijn persoonlijke verhaal. Daarna zal er kennis gedeeld worden over sportblessures en de ontwikkeling van een online blessurepreventie interventie. Als laatste gaan we met de deelnemers nadenken wat deze informatie betekent voor de dagelijkse praktijk. De deelnemer zal van een luisterende rol in het begin van het mini-symposium naar een actief participerende rol in de paneldiscussie gaan. De wetenschappelijke basis van dit mini-symposium is het onderzoeksproject Tailored Injury Prevention in Adapted Sports (TIPAS). Dit onderzoek heeft als doel het aantal en de ernst van blessures te verminderen via een online interventie. Om daar te komen is een systematic review, cohortstudie, kwalitatieve studie en een randomised controlled trial uitgevoerd.

Programma:
Welkom (5 minuten)
- Presentator: Sietske Luijten en Vera van Reuler

De ervaring van een (paralympische) sporter (10 minuten)
- Presentator: naam sporter volgt

Blessurepreventie: wat weten we ervan en hoe groot is het probleem? (10 minuten)
- Presentator: Sietske Luijten en Vera van Reuler
- Resultaten uit de systematic review en cohortstudie

De kijk op blessurepreventie en risicofactoren uit de praktijk (10 minuten)
- Presentator: Vera van Reuler
- Resultaten uit de kwalitatieve studie

De ontwikkeling van een online blessurepreventie interventie op maat (20 minuten)
- Presentator: Sietske Luijten
- Opzet, uitkomsten en proces evaluatie van de randomised controlled trial

Paneldiscussie (30 minuten)
- Panelleden: een sporter, wetenschapper, revalidatiearts, sportarts en fysiotherapeut. Namen volgen.
- Moderator: Vera van Reuler
- Stellingen over voorgaande presentaties en koppeling naar dagelijkse praktijk
- Deelnemers krijgen de gelegenheid om vragen te stellen aan de panelleden

E6 Het ondersteunen van gezond beweeggedrag tijdens de revalidatiebehandeling aan de hand van het Behaviour Change Wheel

Dr. Aleid De Rooij[1,2], MD Desi Stokman-Meiland[2], Dr. Ir. Lisenka Te Lindert[2], Msc. Åsa Mennema[3], Dr. Ingrid Rosbergen[4], Prof. dr. Rienk Dekker[5], Dr. Monique Berger[3], **PhD Jorit Meesters[2]**
[1]LUMC, [2]Basalt, [3]The Hague University of Applied Sciences, [4]University of Applied Sciences Leiden, [5]UMC Groningen

Sessie beschrijving

Het belang van een gezonde leefstijl neemt in de revalidatiegeneeskunde toe waarbij gezond beweeggedrag belangrijk is voor herstel en preventie. Tijdens de revalidatiebehandeling is daar aandacht voor, maar een blijvende gedragsverandering vraagt om een gestructureerde aanpak en een onderliggend gedragsmodel.

Het meerjarig onderzoeksprogramma Basalt in Beweging maakt gebruik van een gedragsveranderingsmodel (Behaviour Change Wheel, BCW) en kenmerkt zich door een multidisciplinaire aanpak, waarbij het signaleren, inzicht geven en ondersteunen van gezond beweeggedrag de pijlers vormen.

Daardoor:
• Krijgen revalidant en revalidatieprofessionals inzicht in het beweeggedrag, het beoogde doelgedrag en beïnvloedende factoren voor het gewenste doelgedrag.
• Komt er een gedragsinterventie gebaseerd op bestaande kennis en duurzame gedragsveranderingstechnieken.
• Wordt de (binnen)omgeving van het revalidatiecentrum ingezet om meer te bewegen.
• Krijgt de verpleegkundige handvatten om patiënten te ondersteunen bij gezond beweeggedrag.

In het mini-symposium wordt het BCW en het onderliggende COM-B model (Capabilities + Opportunities + Motivation = Behaviour) toegelicht en wordt vervolgens aan de hand van 3 onderzoeksprojecten en een zorginnovatie geïllustreerd hoe het gedragsmodel gebruikt wordt binnen een onderzoeksprogramma.

Leeruitkomsten
Na afloop, kent de deelnemer:
• Het gedragsveranderingswiel en de toepassing van het COM-B model
• De lopende onderzoeken en reeds bekende resultaten van Basalt in Beweging
• Inspiratie om zelf met gezond beweeggedrag aan de slag te gaan

Presentatoren en titels van de presentaties (200 woorden)
Opening en welkom door de voorzitter, prof. dr. Rienk Dekker
1. Overzicht over het onderzoeksprogramma Basalt in Beweging, dr. Aleid de Rooij
2. De ontwikkeling van een persoonlijk beweeg- en gedragsprofiel, drs. Desi Stokman-Meiland
3. Het meten, observeren en verkennen van persoonlijke en contextuele factoren van beweeggedrag in een klinische instelling, drs. ir. Lisenka te Lindert

4. De rol van de verpleegkundige om het gezond beweeggedrag van revalidanten te ondersteunen tijdens de klinische opname, drs. Åsa Mennema
5. Het COM-B model voor een beweegvriendelijk revalidatiecentrum en ondersteuning in de 1e lijn, dr. Ingrid Rosbergen
6. Plenaire discussie

Inhoud van de sessie
In dit mini-symposium wordt de opzet van het onderzoeksprogramma Basalt in Beweging ingeleid en de rol van het Behaviour Change Wheel in de verschillende onderzoek- en zorgprojecten uitgelegd.
Vervolgens wordt toegelicht op welke manier een persoonlijk beweeg- en gedragsprofiel ontwikkeld wordt en hoe hierbij gebruik gemaakt wordt van het BCW en COM-B model.
Daarna zal een diepgaande analyse van het beweeggedrag van klinisch opgenomen revalidanten besproken worden, inclusief de wijze waarop die analyse uitgevoerd is: een combinatie van kwantitatieve data, directe observaties (behavioral mapping) en kwalitatieve interviews.
Om te leren hoe verpleegkundigen en andere behandelaren aankijken tegen de rol van de verpleegkundige op het gebied van bewegen, wordt een focusgroep-onderzoek besproken over de toekomstige rol van het verpleegteam en wat nodig is om die rol te vervullen.
Motivatie is een belangrijk onderdeel om in beweging te komen en te blijven. Gebruiken van motivatoren en het aanbieden van beweegmogelijkheden in een stimulerende (revalidatie)omgeving daagt de revalidant veel meer uit om zelf actief te zijn tijdens de revalidatie, tijdens de transitie naar huis en in de 1e lijn.
Afsluitend is ruimte voor discussie en het uitwisselen van goede voorbeelden om revalidanten te ondersteunen richting duurzaam gezond beweeggedrag.

E7 Geleerde lessen uit hybride revalidatiezorg: een passend type zorg voor iedere cliënt

Simone Sep[1,5], Thijs van Meulenbroek[1,5], Karin van Leeuwen[3], Sander Houdijk[4], Desirée Vos-Vromans[2], Margreet Meems[1]
[1]Adelante , [2]Revant, [3]Libra, [4]Basalt, [5]Maastricht University

Hybride revalidatiezorg is een combinatie van face-to-face zorg en zorg op afstand met behulp van technologie. De COVID-19-pandemie heeft geleid tot een toename van het gebruik van hybride revalidatiezorg om de continuïteit van zorg te waarborgen en het risico op verspreiding van het virus te verminderen. Met het verlichten van de coronamaatregelen, zagen we ook weer terugval van het gebruik. Toch wordt digitale zorg steeds structureler toegepast in de revalidatie, met voordelen voor de toegankelijkheid van zorg, kostenbesparing, flexibiliteit en betere kwaliteit en/of patiëntbetrokkenheid. In dit symposium willen we de geleerde lessen van hybride revalidatiezorg delen en bespreken wat we in de toekomst kunnen verwachten van deze vorm van zorg.

Leerdoelen:
1. Inzicht krijgen in de voordelen van hybride revalidatiezorg voor zowel patiënten, zorgverleners, als zorgorganisaties.
2. Begrijpen welke factoren bijdragen aan een succesvolle implementatie van hybride revalidatiezorg.
3. Kennis opdoen over welke patiënten baat hebben bij hybride revalidatiezorg.
4. Bespreken van de uitdagingen en mogelijke oplossingen bij het structureel toepassen van hybride revalidatiezorg.
5. Het delen van best practices en ervaringen van zorgverleners en patiënten met hybride revalidatiezorg.

Presentaties:
1. De meerwaarde van zorg op afstand in de klantreis. Karin van Leeuwen, projectleider innovatie, versnellingsprogramma e-health en digitalisering bij Libra.
2. Revalideren op afstand: Hoe thuis oefenen met een app kan bijdragen aan een succesvolle revalidatie. Sander Houdijk, fysiotherapeut en senior adviseur Innovation, Quality + Research bij Basalt.
3. Ondersteuning bij eHealth; zowel voor revalidant als medewerker. Desiree Vos, programmamanager MSR en projectleider zorg op afstand bij Revant.
4. Hybride revalidatie met centraal neurologisch letsel: de opbrengsten en lessen uit actieonderzoek, Thijs van Meulenbroek, fysiotherapeut en senior onderzoeker bij Adelante.
Voorzitter: Margreet Meems, projectleider eHealth bij Adelante, expert op het gebied van hybride zorg in de revalidatiepraktijk.

Outline session:
Het symposium bestaat uit vier presentaties van vier verschillende centra, elk gevolgd door een korte interactieve vraag- en antwoordsessie waarin deelnemers vragen kunnen stellen en hun eigen ervaringen kunnen delen. Het symposium wordt afgesloten met een plenaire discussie over de toekomst van hybride revalidatiezorg, hoe digitale tools kunnen bijdragen aan meer inclusieve en gelijkwaardige zorg en welke ontwikkelingen we op dit gebied verwachten in de komende jaren.

E8 Onderbouwd samen beslissen - beter gebruik van meetinstrumenten bij beslismomenten in het gehele revalidatieproces na een CVA

PhD Jorrit De Kieviet[1], PhD Judith Vloothuis, Prof.dr. Renske van den Berg-Vos, PhD Mariëtte van Rooij, MSc Irma Streefkerk
[1]Reade Amsterdam

- Session description including learning objective(s)

Deze sessie richt zich op een effectiever gebruik van meetinstrumenten (zowel klinimetrie als patiënt related outcome measures – PROMs) in de dagelijkse klinische praktijk en binnen de ketenzorg. Klinimetrie kan in toenemende mate op een objectieve manier invulling geven aan de functionele prognose na een CVA. Daarnaast zijn PROMs waardevol in het evalueren van de behandeling en het samen met de patiënt beslissen over keuzes die in de behandeling gemaakt worden. Binnen de regio Amsterdam zijn de afgelopen jaren stappen gemaakt om de kracht van deze meetinstrumenten ook terug te laten komen in behandelkeuzes die samen met de patiënt gemaakt worden in ons revalidatieproces. Aan het eind van dit mini-symposium willen wij dat deelnemers de volgende leerdoelen hebben weten te behalen:

- De deelnemer heeft overzicht over het arsenaal aan klinimetrie en PROMs en de waarde van deze meetinstrumenten voor beslissingen in de klinische praktijk
- De deelnemer heeft handvatten en voorbeelden voor succesvolle implementatie van het gebruik van klinimetrie en PROMs in het beslisproces voor zowel de klinische als poliklinische revalidatiesetting
- De deelnemer is op de hoogte van innovatieve recente ontwikkelingen waarbij gegevens over klinimetrie en PROMs binnen de keten automatisch worden meegenomen via de Virtual Ward

- Chair(s)/presenters with titles of the presentations and speakers

Voorzitter: Dr. Judith Vloothuis, revalidatiearts, Reade Amsterdam

1. PROMs en klinimetrie na CVA: een overzicht van mogelijkheden en samen beslissen
Prof. dr. Renske van den Berg-Vos, hoogleraar vasculaire Neurologie, Amsterdam UMC
2. Sterk Reade: Centrale rol klinimetrie in keuzeproces voor klinisch behandeltraject na CVA
Dr. Jorrit de Kieviet, revalidatiearts, Reade Amsterdam
3. PROMs gebruik op de polikliniek: samen beslissen en evalueren met de patiënt
Dr. Mariëtte de Rooij, Fysiotherapeut, onderzoeker en projectleider Samen begrijpen & beslissen, Reade Amsterdam
4. De implementatie van de Virtual Ward en PROMs door de hele CVA keten heen: resultaten van een pilotstudie
Drs. Irma Streefkerk, Ergotherapeut en onderzoeker, OLVG West Amsterdam, Reade Amsterdam

- Outline session

We kennen het inmiddels allemaal binnen de CVA revalidatie: afnemen van diverse klinimetrie die het functioneren op alle domeinen nader in kaart brengen als ook het gebruik van PROMs die hulpvragen en/of ervaringen van patiënten verder objectiveren. Leuk, toch? Of leidt al dit extra werk al snel tot frustraties binnen uw team omdat de uitkomsten niet daadwerkelijk in de dagelijkse praktijk nuttig worden ingezet? Gedurende dit mini-symposium willen we u graag meenemen in de ontwikkelingen op dit gebied in de regio Amsterdam. Allereerst zullen we een overzicht bieden over de beschikbare meetinstrumenten op dit gebied en hun bruikbaarheid voor het verbeteren van beslismomenten binnen uw revalidatiebehandeling. Daarna zullen we voor zowel de klinische als poliklinische revalidatiefase voorbeelden van succesvol gebruik van deze instrumenten voor beslismomenten aan u presenteren. We sluiten de sessie af met de resultaten van een pilotonderzoek waarbij alle relevante meetinstrumenten binnen de hele CVA keten in regio Amsterdam onderling beschikbaar wordt gesteld via een innovatieve Virtual Ward. Deze ontwikkeling vormt een vliegwiel voor verdere verbeteringen in het effectief gebruik van klinimetrie en PROMs voor beslismomenten in het revalidatietraject, en biedt een inspirerende blik op de toekomst.

Top 12 Posters: plenary poster pitch presentation: 10 November 11.45 - 12.00 hrs.

P01: Cognitive assessment during inpatient rehabilitation after spinal cord injury - *Anneke Welkamp*

P02: Cumulative plantar tissue stress and its association with foot ulcer recurrence in people with diabetes - *Chantal Hulshof*

P03: Gait stability and the relationship with energy cost of walking in polio survivors with unilateral plantarflexor weakness - *Elza Van Duijnhoven*

P04: The structure of rehabilitation care for young patients with acquired brain injury: Similarities and differences among Dutch rehabilitation centers - *Florian Allonsius*

P05: Effects of training for an athletic challenge on illness cognition in individuals with chronic disability: a prospective cohort study - *Ingrid Kouwijzer*

P06: Computerized assessment of the ventilatory threshold for exercise prescription in neuromuscular diseases; an alternative for visual assessment? - *Jacco Engel*

P07 - I1 Update on the development and use of a Mixed Reality spinal cord injury patient education: detailed modules about neurogenic bladder and bowel dysfunction and management - *Joost Baardman*

P08: Is upper extremity contracture progression related to changes in upper extremity function in boys with duchenne muscular dystrophy? a prospective, longitudinal, multicenter natural history study - *Merel Italianer*

P09: Comparison of the advanced multi-grip myoelectric hand prostheses with the standard myoelectric hand prostheses - *Nienke Kerver*

P10 - I2 ADJUST: A stiffness adjustable ankle-foot-orthosis for rapid human-in-the-loop orthosis selection - *Rein Miedema*

P11: RYSEN body weight support versus conventional gait training: an observational study - *Sanne Ettema*

P12: The validity of cardiopulmonary exercise testing to assess peak oxygen consumption in people with slowly progressive neuromuscular diseases - *Tim Veneman*

P01

Cognitive assessment during inpatient rehabilitation after spinal cord injury

Welkamp A[1], v. Leeuwen C[1], Post M[1,2], Stolwijk-Swüste J[1]
[1]Centre of Excellence for Rehabilitation Medicine, UMC Utrecht Brain Centre, University Medical Centre Utrecht, and De Hoogstraat Rehabilitation, [2]University of Groningen, University Medical Center Groningen, Department of Rehabilitation Medicine

Introduction
Research on spinal cord injury (SCI) historically focuses on physical and psychological functioning. At this moment, cognitive screening is not common practice.

Objectives
1) to evaluate cognitive functioning of rehabilitation inpatients with recently acquired SCI with the Montreal Cognitive Assessment (MoCA); 2) to compare the MoCA with the cognitive domain of the Utrecht scale for Evaluation of Rehabilitation (USER)

Patients
Rehabilitation inpatients with recently acquired SCI

Added value for patients
Understanding of cognitive functioning helps to improve SCI rehabilition as this involves learning new abilities.

Methods
MOCA and USER data of inpatients between November 2020 and December 2021 were used. The correlation coefficient between MoCA and USER scores and regression analysis determined the associations between MoCA and demographic and injury-related variables.

Results
Included were 99 adults aged (median) 59.1 years (range 19.5-84.4). In 44.6 % the MoCA score was below the cut-off. Age ($r = 0.31$, $p = 0.005$) and educational level ($r = 0.54$ $P < 0.00$) were significantly correlated to the MoCA score. The MoCA and the cognitive domain of the USER were moderately correlated ($r = 0.25$, $p = 0.03$).

Discussion and conclusions
Almost half of the inpatients scored below the cut-off score on the MoCA. Since the MoCA is a validated cognitive screening tool, the moderate correlation of the MoCA and the cognitive domain of the USER suggests that the USER alone is not sufficient in detecting cognitive deficits.

Clinical message
We recommend screening for cognitive deficits (eg. MoCA) in all people with new SCI.

P02

Cumulative plantar tissue stress and its association with foot ulcer recurrence in people with diabetes

Hulshof C[1,2], van Netten J[1,2], Busch-Westbroek T[1], Sabelis L[1], Pijnappels M[2,3], Bus S[1,2]
[1]Department of Rehabilitation Medicine, Amsterdam UMC, University of Amsterdam and Vrije Universiteit Amsterdam, [2]Amsterdam Movement Sciences, Ageing & Vitality and Rehabilitation & Development, [3]Department of Human Movement Sciences, Vrije Universiteit Amsterdam

Introduction: Cumulative plantar tissue stress on the foot is thought to be an important causative factor in diabetes-related plantar foot ulceration.

Objective: To investigate the association between cumulative plantar tissue stress (CPTS), its underlying components (i.e. pressure, weight-bearing activity and adherence) and plantar foot ulcer recurrence.

Patients: People with diabetes and neuropathy (IWGDF risk 2-3).

Added value for patients: Preventing plantar foot ulcers in people with diabetes.

Methods: We longitudinally followed 60 participants for 12 months. At baseline, we objectively assessed demographics, and: barefoot and in-shoe plantar pressures during walking and standing, type and extent of weight-bearing activities during 7 days, and footwear adherence. These were combined in a CPTS model, which included barefoot and in-shoe pressure-time integrals for walking and standing. We used Student's t-tests to compare people with and without plantar foot ulcer recurrence ($p<0.05$).

Results: In total, 22 participants (37%) developed a plantar foot ulcer. Mean CPTS was not significantly different between the ulcer and no-ulcer group (1341±961 vs. 1323±812 MPa.s/day, respectively, $p=0.431$). The underlying components were not significantly different between the groups. Compared to the no-ulcer group, the ulcer group had a lower walking speed in the laboratory (0.94±0.28 vs. 1.14±0.21 m/s, $p=0.004$), and used a mobility device more often (46% vs. 11%, $p=0.002$).

Discussion and conclusions: CPTS and its underlying components were not different between people who developed a recurrent plantar foot ulcer and those who did not.

Clinical message: More generic health-condition related markers indicating patient fragility seem factors in plantar foot ulcer recurrence.

P03

Gait stability and the relationship with energy cost of walking in polio survivors with unilateral plantarflexor weakness

Van Duijnhoven E[1,2], Koopman F[1,2], Nollet F[1,2], Bruijn S[3], Brehm M[1,2]
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Introduction
Polio survivors often exhibit plantarflexor weakness, affecting gait stability and walking energy cost. Quantifying gait stability could provide insights into the control mechanisms polio survivors use to maintain stability and its relation with energy cost.

Objective
Is gait stability impaired in polio survivors compared to controls, and does it relate to walking energy cost?

Patients
Thirty-one polio survivors with unilateral plantarflexor weakness and 24 controls.

Added value for patients
Better understanding of gait stability could improve (orthotic) treatment.

Methods
Barefoot biomechanical gait data were analyzed to estimate gait stability. We calculated variability (SD) of step width, step length, double support time, and stance time, and the mean and SD of the mediolateral and anteroposterior margin of stability (MoS-ML and MoS-AP) for both affected and non-affected legs. Further, walking energy cost at comfortable speed was analyzed.

Results
Comfortable speed was 31% lower in polio survivors compared to controls ($p<0.001$). Corrected for speed, step-width variability was 41% larger in polio survivors, MoS-ML (affected leg) was 80% larger, and MoS-AP was 17% and 15% smaller (affected and non-affected) respectively, all $p<0.05$. Step-width and step-length (affected leg) variability positively correlated with energy cost ($r=0.502$ and $r=0.552$), while MoS-AP (non-affected leg) was negatively correlated ($r=-0.530$).

Discussion
Polio survivors demonstrated impaired gait stability. Increased step-width and step-length variability and lower MoS-AP could be factors related to their elevated walking energy cost.

Clinical message
Findings increase our understanding of instability problems due to plantarflexor weakness in polio survivors, which could be used for improving (orthotic) interventions.

P04

The structure of rehabilitation care for young patients with acquired brain injury: Similarities and differences among Dutch rehabilitation centers

Allonsius F[1,2], de Kloet A[1,2], van Markus-Doornbosch F[1], Vliet Vlieland T[1,2], van der Holst M[1,2], the Project “Participate?! Next Step” Study group/research Consortium
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Introduction: Differences in care pathways/the delivery of rehabilitation care for young people with acquired brain injury (ABI) across rehabilitation centers (RCs), may lead to unwanted practice variations.
Objective: Identifying potential similarities/differences regarding the care structure across RCs.
Participants: Healthcare professionals from Dutch RCs that work with young people(<25 years) with ABI.
Methods: In this cross-sectional study, participants were invited to complete a 21-item questionnaire (12 yes/no& nine corresponding open-ended-questions). Questions were divided into three topics: admission/discharge criteria (n=2&2), organization of rehabilitation (n=7&5), and aftercare (n=3&2). Answers to open-ended questions were thematically analyzed/categorized. Differences across RCs were defined as an item being present/described in <75% of the RCs.
Results: Rehabilitation professionals from 12 RCs participated. Similarities&differences were found regarding the structure of rehabilitation care. Concerning admission criteria(present in all RCs), “an ABI diagnosis” was seen by all RCs as an essential criterium, whereas all other admission criteria were described differently. The discharge criterium "goal-attainment" was the only criterium found in ≥75% of the RCs. Regarding the organization of rehabilitation, most RCs (≥75%) described “the presence of specialized teams”&“diagnosis-specific consultation-appointments”. Differences were found, e.g., the “presence of transition-teams” for young adults (<75%). Concerning aftercare, similarities were found in the “presence of structural end-reports”&“discharge/follow-up appointments”. However, differences were seen in the “timing between discharge&follow-up”.
Discussion&conclusions: Besides similarities between RCs, differences were found regarding the structure of outpatient rehabilitation.
Clinical-message/Added-value: Gaining insights into differences across RCs and reducing practice variation could reinforce collaborations between RCs to harmonize/optimize care quality for young people with ABI.

P05

Effects of training for an athletic challenge on illness cognition in individuals with chronic disability: a prospective cohort study

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Introduction: Illness cognition (IC) describes a patient's thoughts and beliefs about their condition. These thoughts and beliefs influence how a patient adapts to a chronic disease.
Objective: To determine if training for the HandbikeBattle improves IC and identify factors associated with IC.
Patients: Persons with chronic disability (N=220) training for the HandbikeBattle.
Added value for patients: This study describes whether and how illness cognition could be influenced.
Methods: IC (helplessness, acceptance, perceived benefits) measured with the Illness Cognition Questionnaire, was assessed before training (T1), after the 5-month training period (T2), and four months after the event (T3). Age, sex, body mass index, peak aerobic capacity, time since injury, disability type, self-efficacy and mental health were obtained at T1.
Results: Multilevel regression analyses showed that helplessness decreased (β=-0.7, $p<0.001$) and perceived benefits increased (β=0.7, $p<0.001$) from T1 to T2 but did not change from T2 to T3 (β=-0.1, p=0.55 and β=-0.3, p=0.15). Greater helplessness was associated with time since injury > 2 years (β=-2.32, p=0.01) and having mental health problems (β=-3.42, $p<0.001$). Greater acceptance was associated with younger age (β=-0.07, p=0.01) and lower acceptance with having mental health problems (β=2.95, $p<0.001$). Greater perceived benefits was associated with younger age (β=-0.11, $p<0.001$) and higher self-efficacy (β=0.13, p=0.01).
Discussion and conclusions: Training for a challenging sporting event may improve IC. This benefit appears to be sustained for at least 4 months after event completion.
Clinical message: Training with a team towards a challenging goal improves feelings of helplessness and perceived benefits.

P06

Computerized assessment of the ventilatory threshold for exercise prescription in neuromuscular diseases; an alternative for visual assessment?

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Introduction: The first ventilatory threshold (VT1) can be used for personalized aerobic exercise intensity prescription in people with neuromuscular diseases (NMD). VT1 is often assessed through visual inspection of gas analysis plots, with a potential high interrater variability.
Objective: To compare computerized assessment of the VT1 with visual assessment, in individuals with slow progressive NMD.
Patients: Sixty-six individuals with 11 different slowly progressive NMDs.
Added value for patients: Computerized assessment of the VT1 may enable a faster and more accurate aerobic exercise intensity prescription.
Methods: Participants performed a cardiopulmonary exercise test on a cycle ergometer. Visual assessment of VT1 was done by 2 independent researchers using the V-slope method. Computerized assessment was performed for three methods: the V-slope, the excess CO2, and the ventilatory equivalent method, using an existing MATLAB function to identify change points (based on Pruned Exact Linear Time algorithm).
Results: Intraclass correlation coefficients between visual VT1 assessment and the three computerized methods were 0,856, 0,685, and 0.335 respectively. Visual VT1 assessment did not systematically differ from computerized VT1 assessment using the V-slope method; the other two computerized methods did show systematic differences to visual VT1 assessment ($p<0,05$). The limits of agreement were -15 to 14, -12 to 37, and -24 to 60 beats per minute respectively for computerized assessment.
Discussion and conclusions: Computerized VT1 assessment using the V-slope method relates best to visual VT1 assessment.
Clinical message: Computerized VT1 assessment may be considered for personalized exercise intensity prescription in NMD, taking into account the limits of agreement.

P07 / I01

Update on the development and use of a Mixed Reality spinal cord injury patient education: detailed modules about neurogenic bladder and bowel dysfunction and management

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[1]De Hoogstraat Rehabilitation, [2]HoloMoves B.V., [3]Patient expert

Introduction

Neurogenic bladder and bowel dysfunction are common after spinal cord injury (SCI) and have a big impact on quality of life. Effective counseling about these secondary health conditions is essential for self-management skills and long term health, but conventional education methods have barriers [1]. Mixed Reality (MR) is a suitable technology to strengthen education [2]. We developed an MR patient education explaining neurogenic bladder and bowel dysfunction and management.

Methods

We expanded our existing MR patient education for Microsoft HoloLens 2 about the basic consequences of SCI [3] with detailed modules. Our development team consisted of physicians, a nurse practitioner specialized in bladder and bowel continence, a patient expert and a Mixed Reality software company.

Results and discussion

The expanded modules contain visual information about bladder and bowel physiology, pathology after SCI, common complications and effective management. Implementation in day-to-day care allows our patients to create better and more learning experiences. Qualitative evaluation of the basic module showed patient satisfaction with this new technology [3]. The influence of MR in the learning process will be subject of further research in 2023-2024.

Conclusions

This innovative method for patient education about neurogenic bladder and bowel management might improve knowledge transfer by visually enhanced interaction. This could lead to better self-management skills and prevent complications.

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P08

Is upper extremity contracture progression related to changes in upper extremity function in boys with duchenne muscular dystrophy? a prospective, longitudinal, multicenter natural history study

van der Holst M[1,2], Italianer M[1], Wolfe A[3], Chesshyre M[3,10], Voit T[3], Straub V[4,9], de Lucia S[7], Servais L[5,6], Hogrel J[7], Pelsma M[8], de Groot I[8], Houwen S[8], Muntoni F[10], Niks E[2]
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Introduction
Duchenne muscular dystrophy (DMD) causes progressive muscle weakness and gradually leads to contracture development, both resulting in functional decline. It is not known how range of motion (ROM) is associated with function over time within individuals.

Objective
To investigate whether changes in upper extremity (UE)-ROM are associated with changes in UE-function in individual patients.

Patients/methods
Boys with DMD aged >5 years were eligible for this prospective, multicenter study. Bilateral passive UE-ROM-outcomes: wrist extension (range:-90°;100°), supination (range:-90°;90°), elbow extension (range:+15°;-150°), shoulder flexion (range:0°;180°), and Performance of the Upper Limb (PUL1.2, range:0-74 points) were collected 6-monthly for up to 4 years. ROM-total was computed (sum of ROM-outcomes, range:-660°;770°). Changes over time were tested using mixed-linear-models and within-individual association between UE-ROM and UE-function using repeated-measure-correlations.

Results
Ninety boys were included. Mean baseline age was 9.5 years (SD:3.7), 58(64.4%) were ambulant, 78(86.7%) used steroids. Mean ROM-total was 646°(SD:99.7°) and mean PUL-score 63 points (SD:10.0). ROM-total and PUL-score decreased over time; -50°(p=0.001) and -11 points (p<0.001). Weak correlations were found between PUL and elbow extension (rrm=0.31,p<0.001) and ROM-total (rrm=0.33,p<0.001), but not with other ROM-outcomes (rrm<0.2, p>0.05).

Discussion/conclusion

Even though UE-ROM and UE-function deteriorate over time, there is only a weak within-individual association between both. Loss of strength probably precedes loss of passive UE-ROM but there may be an interplay between UE-ROM, strength and function. Further research is needed to investigate this interplay.

Clinical message/Patient value
UE contracture prevention in DMD is important, but staying active may also help to preserve UE-ROM, strength and function.

P09

Comparison of the advanced multi-grip myoelectric hand prostheses with the standard myoelectric hand prostheses

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[1]UMCG

Introduction: Multi-grip myoelectric hand prostheses (MHPs) aim to enhance functionality compared to standard myoelectric hand prostheses (SHPs), but limited evidence exists comparing the two.
Objective: To compare MHPs and SHPs across all categories of the International Classification of Functioning, Disability, and Health (ICF) model.
Patients: 14 MHP users (mean age=48.6 years, 64.3% male) and 19 SHP users (mean age=58.1 years, 68.4% male).
Added value for patients: Insights into the advantages/disadvantages of MHPs and SHPs.
Methods: MHP users performed physical measurements with their MHP and an SHP (i.e., Refined Clothespin Relocation Test/RCRT, Tray-test, Box and Blocks Test, Southampton Hand Assessment Procedure). MHP and SHP users completed questionnaires/scales (i.e., OPUS-UEFS, TAPES-upper, RAND-36, EQ-5D-5L, VAS, D-Quest, patient-reported outcome measure to assess the preferred usage features of upper limb prostheses/PUF-ULP) to assess user experiences and quality of life.
Results: Nearly all MHP users exhibited similar joint angle coordination patterns with the MHP and SHP. The RCRT (upward direction) was performed slower in the MHP compared with the SHP condition. MHP users reported lower quality of life and more pain or pain-related limitations. MHPs scored better in holding/shaking hands, while SHPs outperformed MHPs in several VAS-scores and the PUF-ULP.
Discussion and Conclusions: MHPs did not show relevant advantages compared to SHPs in any ICF categories.
Clinical Message: When selecting a prosthesis, it is important to carefully consider whether the MHP is the most suitable option for an individual or whether a less expensive prosthesis would meet their needs equally well or possibly even better.

P10 / I02

ADJUST: A stiffness adjustable ankle-foot-orthosis for rapid human-in-the-loop orthosis selection

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Topic: Spring-like ankle-foot-orthoses (AFOs) can augment walking for individuals with calf muscle weakness by improving the gait pattern and reducing energy cost of walking. We have previously demonstrated that the effectiveness of spring-like AFOs to reduce walking energy cost can be greatly improved when the AFO stiffness is individually optimized. However, the current procedure for stiffness optimization is time-consuming (4-8 hours) and burdensome for patients, hindering widespread clinical implementation. To address these limitations, we developed an untethered wearable AFO capable of changing stiffness during walking.

Relevance: In previous research we have shown that optimising the stiffness of spring-like AFO's gives a clinically relevant improvement of effectiveness. By shortening the optimization procedure it becomes available for a larger population, enlarging the societal effect. With over 19.000 Dutch AFO users in 2021, the financial implications of prescription are large with healthcare costs amounting to 23.3 million euro's.

Current status: The ADJUST-AFO (weight 2 kg, without shoes) can be controlled wirelessly with a laptop over WiFi. Through a variable-stiffness-mechanism located dorsally on the AFO, the stiffness can be changed between 1 and 7 Nm/deg. Bench testing and walk tests with three healthy participants showed good functioning and safety of the device.

Plan of action: The coming months, the ADJUST-AFO will be tested in healthy subjects and patients with calf muscle weakness and compared to the current optimisation procedure to establish the feasibility and validity of the ADJUST-AFO. Furthermore, design optimisations to reduce weight and increase user friendliness will be done.

P11

RYSEN body weight support versus conventional gait training: an observational study

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Introduction

Patients' fear of falling (FoF) may withhold them from intensive gait training. The RYSEN body weight support (BWS) system is thought to reduce FoF. This may alter therapists' intended training goals and could increase training intensity compared to conventional gait training (CGT).

Objective
To investigate differences in FoF, training goals, and intensity between RYSEN and CGT.
Patients
Eleven individuals after stroke (60±13 years, FAC: 0-4) and five individuals with a spinal cord injury (SCI) (61±16 years, WISCI: 0-16).
Added value for patients
RYSEN gait training may allow patients to participate in more intensive gait training with reduced FoF.

Methods
Participants performed three training sessions: CGT, RYSEN and RYSEN with augmented reality (RYSEN-AR). After each session, patients rated their FoF and therapists reported intended training goals. Training intensity was quantified in terms of heart rate and step count.

Results
Patients' FoF was lower during RYSEN(-AR) than during CGT ($p<0.01$). Major intended training goals were improving balance control during RYSEN(-AR) and improving physical fitness during CGT. Training intensity did not significantly differ between sessions.

Discussion
BWS reduced patients' FoF and caused therapists to organize more specific balance training, but did not increase training intensity. This is probably because improving fitness was not therapists' intended goal during RYSEN(-AR) training. Our results challenge therapists to benefit more from patients' reduced FoF by considering exercises that allow for balance training at high intensity.

Clinical message
RYSEN(-AR) gait training reduces FoF, but does not increase training intensity in individuals after stroke and SCI.

P12

The validity of cardiopulmonary exercise testing to assess peak oxygen consumption in people with slowly progressive neuromuscular diseases

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Introduction: Cardiopulmonary exercise testing (CPET) is the gold standard for the assessment of peak oxygen consumption (VO2peak). However, its validity in slowly progressive neuromuscular diseases (NMD) could be limited because muscle weakness may predominantly determine exercise performance.

Objective: To determine the content validity of CPET to assess VO2peak in people with slowly progressive NMD.

Patients: Eighty-six ambulatory adults (mean±SD age: 58.2±13.8 years) with a slowly progressive NMD (Charcot-Marie-Tooth (n=36), Post-polio syndrome (n=25), other NMD (n=25)) participated in the study.

Added value for patients: Valid methods to determine VO2peak are crucial for adequate aerobic capacity assessment and exercise intensity prescription.
Methods: Participants performed a CPET on a cycle ergometer. VO2peak assessment was considered valid if the primary criterion, or 2 out of 3 secondary criteria for achieving a maximal cardiopulmonary effort were met. The primary criterion was a plateau in oxygen consumption (VO2plateau). Secondary criteria were a 1) peak respiratory exchange ratio (RERpeak) ≥1.1, 2) peak heart rate (HRpeak) ≥85% of predicted maximal heart rate, and 3) rating of perceived exertion (RPE) ≥17 on the 6-20 Borg scale.

Results: In 75 subjects (87%) VO2peak assessment was considered valid. VO2plateau, RERpeak ≥1.1, HRpeak ≥85%, and RPE ≥17 was achieved in 31%, 73%, 78%, and 72% of participants, respectively.

Discussion and conclusions: CPET provided a valid assessment of VO2peak in the majority of ambulatory adults with slowly progressive NMD.

Clinical message: CPET can be used in clinical practice to validly assess VO2peak in ambulatory NMD patients.

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P13

The feasibility and test-retest reliability of determining the first ventilatory threshold through submaximal exercise testing in slowly progressive neuromuscular diseases.

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Introduction: The first ventilatory threshold (VT1), usually measured through maximal cardiopulmonary exercise testing, is often used for aerobic exercise intensity prescription for individuals with neuromuscular diseases (NMD).

Objective: To determine the feasibility and reliability of VT1 assessment through submaximal exercise testing in slowly progressive NMD.

Patients: Forty-three ambulatory adults (mean±SD age: 63.1±10.5) with 7 different slowly progressive NMD.

Added value for patients: Feasible and reliable methods to determine VT1 are crucial for adequate exercise intensity prescription.
Methods: Subjects performed, on separate days, two submaximal incremental exercise tests on a cycle ergometer. Heart rate (HR) at VT1 was determined using visual inspection of the Wasserman plots. Feasibility was expressed as the percentage of patients for whom VT1 could be determined. Test-retest reliability of VT1 was determined using intraclass corelation coefficients (ICCs), paired t-test for systematic differences, standard error of measurement (SEM) and limits of agreement (LoA).

Results: VT1 could be determined in 41 patients (95%). ICC was high (0.823) and SEM was small (3.9%). There was no systematic bias and LoA were -19.4 to 18.3 beats per minute.

Discussion and conclusions: VT1 could be assessed through submaximal exercise testing in the majority of patients with NMD. Reliability at group level was good. Reliability at individual level is appropriate for training intensity prescription in most individuals, but may not be sufficient to detect individual changes following exercise intervention.

Clinical message: Submaximal exercise testing can be used to assess VT1 in people with NMD.

P14

Trajectory of life satisfaction and its relationship with psychological determinants in people with a spinal cord injury – a prospective longitudinal cohort study.

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Introduction: In general, people's life satisfaction (LS) decreases after spinal cord injury (SCI). Psychological determinants play an important role in how LS develops. But knowledge is limited about how LS develops during inpatient rehabilitation and one year after discharge, and about which determinants predict LS.
Objective: This study describes how LS develops in people with SCI from admission for initial SCI inpatient rehabilitation until 5 years after, and examines how psychological factors are associated with this trajectory of life satisfaction.
Methods: In this prospective longitudinal cohort study, we included 284 patients. Patients were invited for 9 measurement moments from admission until 5 years after. LS was assessed with the Life Satisfaction Scale. Psychological factors assessed were general self-efficacy, disability management self-efficacy, resilience, neuroticism, meaning in life, coping and cognitive appraisals.
Results: Mean age of patients was 55.8y (SD 15.2), 47% had paraplegia and 22% had complete SCI. Median time of hospitalization was 12.0 (IQR 6.0-19.0) weeks, time of initial inpatient rehabilitation was 11.0 (6.0-18.0) weeks. LS increased during rehabilitation, especially in the first month, with improvement even until 5 years after admission. Most important predictors of LS in the first 5 years after SCI were disability management self-efficacy and the appraisals threat and challenge.
Discussion and conclusions: LS of patients with SCI increases at the first month of the initial inpatient rehabilitation until 5 years after admission.
Clinical message and added value: Psychological factors are associated with the trajectory of LS, and should be strengthened during and after rehabilitation.

P15

Evaluation of Medical Education in Rehabilitation Medicine at Adelante Rehabilitation Centre, Hoensbroek

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Background: Several bachelor and master educational activities for medical undergraduates are provided by Adelante Rehabilitation Centre, Hoensbroek. The quality of the provided education was never formally tested. In this mixed-design study we aim to evaluate the quality and effectiveness of two different educational activites: 'Educational Patient Contact (3rd year) and 'Neurorehabilitation Education (5th year)'.

Methods: A total of 63 medical students who participated in these educational activities completed a questionnaire assessing their appraisal, experiences and perceived achievement of Intended Learning Outcomes (ILOs). Eleven educational sessions of these educational activities were observed to identify the instructional components within the model of Merrill's First Principle of Instruction. Data were analysed with descriptive statistics and Kruskal-Wallis analysis.

Results: Results show that these educational activities align with the principles of Merrill's First Principle of Instruction for the majority of ILOs. The fifth level: the implementation of knowledge could not be observed. Students were highly motivated and expressed high satisfaction. Observed improvements: lack of specific ILOs for the 'Neurorehabilitation Education'; better preparation materials for students and teachers; inclusion of ICF instruction by all teachers and improvement of teacher instruction for this education.

Conclusion: The results emphasize the significance of establishing well-defined ILOs and teachers' instructions in educational activities to enhance learning and generate interest for students in RM. We recommend that future educational initiatives in RM include comprehensive ILOs to ensure effective teaching. Additionally, this study can provide guidelines for future evaluation of education within the field of RM with Merrill's First Principle of Instruction.

P16

Utilizing Educational Diversity in Rehabilitation Nursing: Optimizing the Nursing Team's Potential

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Introduction
Despite different educational backgrounds in rehabilitation nursing (MBO-V, HBO-V, rehabilitation specialization (SRN)), there is substatial overlap in their daily work. Gaining insight in differences in knowledge and skills potentially improves care by utilizing eachothers strenghts.
Objective
How do the roles outlined in the Canadian Medical Education Directions for Specialists (CanMEDS) vary/overlap among MBO-V, HBO-V, SRN, and what is the teachers' perception regarding the relevance of these roles?
Subjects
Sixteen MBO-V/HBO-V teachers.
Added value for patients
Utilizing diverse educational backgrounds within nurse teams improves care.
Methods
In a stepwise procedure, a questionnaire was developed to assess assurance and relevance of CanMEDS within the curricula. The level of agreement for CanMEDS items was calculated using a validity-index (I-CVI), and similarities among MBO-V, HBO-V, SRN were identified.
Results
In MBO-V, caregiver and communicator roles showed high assurance (75% and 64%) and relevance (99% and 100%). In HBO-V, the health advocate role had the highest assurance (64%) and relevance (91%), but no roles stood out distinctly. The lowest overlap between educational profiles was observed in the collaborator role between SRN and MBO-V (80%), while the roles of reflective professional (70%) and manager (71%) had the lowest overlap between SRN and HBO-V.
Discussion and conclusion
While MBO-V demonstrates clear expertise in specific areas, this is less apparent in HBO-V. The education of rehabilitation nurses in both MBO-V and HBO-V seems to lack essential components.
Clinical relevance
Develop collaborative education profiles between MBO-V and HBO-V, with the aim of expanding future education for rehabilitation nurses.

P17

Safety, walking ability and satisfaction outcomes with the NEUROTRONIC knee-ankle-foot orthosis (SCKAFO): a comparative evaluation to the E-MAG Active SCKAFO

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Introduction
Stance-control knee-ankle-foot orthoses (SCKAFOs) ensure knee stability by locking during stance while allowing knee flexion during swing. Differences in function between KAFO knee-joints may affect their effectiveness.

Objective
To compare the effectiveness of a NEUROTRONIC SCKAFO on safety outcomes, net energy cost and user experiences with an E-MAG Active SCKAFO.

Patients
Ten subjects with lower extremity muscle weakness, already using an E-MAG Active SCKAFO were provided with a NEUROTRONIC SCKAFO.

Added value for patients
To optimize SCKAFO prescription for individuals with a SCKAFO indication.

Methods
Outcomes included knee-joint locking and unlocking failures (percentage of steps the knee-joint failed to lock/unlock) when walking under challenging conditions on an instrumented treadmill; net energy cost (J/kg/m) assessed with a 6-minute walk test; 3D gait analysis outcomes; and patient-reported outcomes.

Results
No differences between KAFOs were found for knee-joint locking failures (both devices 0%) and unlocking failures (NEUROTRONIC 9.9% vs. E-MAG Active 13.9%). Net energy cost with the NEUROTRONIC SCKAFO reduced not significantly with 8.2% ($p=0.123$). Significant improvements with the NEUROTRONIC SCKAFO were found for ankle power ($p=0.003$) and perceived walking effort ($p=0.014$).

Conclusion
With regard to knee-joint safety, the NEUROTRONIC SCKAFO and E-MAG Active SCKAFO have comparable outcomes. Net energy cost reduced with 8.2% but not significantly with the NEUROTRONIC SCKAFO, and ankle power and perceived walking effort were in favor of the NEURO TRONIC SCKAFO.

Clinical message
The NEUROTRONIC SCKAFO and E-MAG Active SCKAFO have comparable outcomes with respect to knee-joint locking safety and can be satisfactorily prescribed in clinical care.

P18

Measurement of outcomes of rehabilitation in the Netherlands (MUREVAN): a multicentre prospective cohort study

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Medical ethical committee: The Medical Ethics Committee of the University Medical Centre Utrecht declared that this study did not require approval according to the Dutch Law on Medical Research. Boards of all participating rehabilitation centres provided approval to perform the study.

Introduction: In Dutch rehabilitation care there is a need for a standard selection of generic measurement instruments that can measure outcomes of rehabilitation in four domains: physical function, participation, self-regulation and quality of life.

Research question: What is the test-retest reliability and responsiveness of the selected measurement instruments in rehabilitation patients?

Trial design/ patients and methods: In this prospective cohort study inpatient and outpatient patients from various rehabilitation centres and rehabilitation departments of hospitals will complete a set of questionnaires at the start of their rehabilitation treatment and six months later. The four main domains will be measured by EuroQoL-5D, USER-Participation, SeRA (Self-Regulation Assessment), PROMIS Global Health (01 + 02) and PROMIS Ability to participate in social roles and activities (Short form 4a). In addition, mood, pain and fatigue will also be assessed by PROMIS Short Forms.

Added value for patients: Using reliable and responsive measurement instruments can provide the rehabilitation patient insight into the achieved result of the rehabilitation treatments in important domains.

Expected contribution to research and clinical practice: The results of this study will provide more insight into the appropriateness of the selected measurement instruments to evaluate rehabilitation outcomes in adult rehabilitation across diagnoses.

P19

The exploration of patients' experience concerning the use of PROMs within routine post-stroke practice: a mixed method approach

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Introduction: To measure problems in the various aspects of health, Patient Reported Outcomes Measures (PROMs) are increasingly used in stroke clinical practice.

Objective: Primary aim was to explore the patients' experience regarding the use of PROMs in outpatient stroke clinics.

Patients: Patients with ischemic stroke 2-3 months after the event.

Added value for patients: The application of PROMs in stroke clinical practice can be improved by knowing the patients' experiences.

Methods: In this prospective mixed methods study, 62 patients completed a questionnaire regarding the use of PROMs. Ten of these patients participated in a telephone interview to gain in-depth information about the patients' experience with PROMs.

Results: Most patients (82.2%-96.6%) agreed with the statements about feasibility, purpose, and relevance of the PROMs. According to half of the patients (49.2%-51.6%), the use of PROMS was helpful for the consultation visit. Patients experienced the PROMs useful for insight into the stroke problems: 74.2% agreed it was useful to the healthcare providers' insight and 51.6% agreed it was useful for their own insight. In the interviews, patients reported sorting out further care, gaining broader insight into the problems, and discussing all important topics as added value of PROMs.

Conclusions: The use of PROMs in outpatient stroke clinic appears to be feasible for patients, and the vast majority of patients experiences added value for themselves or the healthcare provider.

Clinical message: Patients experience PROMs useful for insight, therefore discussing the PROM results during the consultation visit will reward their motivation to complete these PROMs.

P20

RISE intervention: heading to a sustainable movement behavioural change in people with stroke - trial protocol

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Introduction: A healthier balance in the 24-hour activity pattern (sedentary time, physical activity and sleep) is expected to reduce the risk of recurrent stroke. To support people in striking this balance, an intervention focusing on modifying sedentary behaviour was designed.

Research question: What is the effectiveness of the RISE intervention on reducing sedentary behaviour in people with stroke in comparison to usual care?

Methods: In this multicentre randomized controlled trial, the 24-hour activity pattern of 159 people with stroke will be measured. People will be randomly assigned to the RISE intervention or usual care group. Effectiveness of the RISE intervention to reduce sedentary time, will be measured (ActivPAL) at the end of the intervention period. Follow-up takes place until one year post-randomization.

The RISE intervention is a 15-weeks blended behavioural intervention, in which a trained primary care physiotherapist coaches people on reducing sedentary time. People receive participatory support from someone in their network who joins them in the intervention. Physiotherapists will use the RISE eCoaching system: 1) an activity monitor, 2) a smartphone application that provides real-time feedback and contains e-learning modules, 3) a monitoring dashboard for physiotherapists.

NedMec Utrecht, NL83940.000.23.

Added value for patients: The RISE intervention will support people to reduce sedentary time and is thereby expected to lower the risk on recurrent stroke.

Expected contribution to research and clinical practice: This study generates relevant knowledge about optimizating the 24-hour activity pattern for the stroke service, including outpatient rehabilitation. Physiotherapists will be educated in providing a behavioural intervention.

P21

The effect of bimanual intensive functional training on somatosensory hand function in children with unilateral spastic cerebral palsy

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Introduction: Next to motor impairments, children with unilateral spastic cerebral palsy (CP) of-ten experience sensory impairments. Intensive bimanual training is well known for improving mo-tor abilities, though its effect on sensory impairments is less known.

Objective: To investigate whether bimanual intensive functional therapy without using enriched sensory materials im-proves somatosensory hand function.

Patients: Twenty-four participants with CP (12 – 17 years of age) received 80-90 hours of intensive functional training aimed at improving bimanual performance in daily life. Somatosensory hand function was measured before training, directly af-ter training and at 6 months follow-up. Outcome measures were: proprioception, measured by thumb and wrist position task and thumb localisation task; vibration sensation; tactile perception; and stereognosis.

Results: Next to improving on their individual treatment goals, after training participants also showed significant improvements in perception of thumb and wrist position, vi-bration sensation, tactile perception and stereognosis of the more affected hand. Improvements were retained at six months follow-up. Conversely, proprioception measured by the thumb locali-sation task did not improve after training.

Conclusion: Intensive functional bimanual training without environmental tactile enrichment may improve the somatosensory function of the more affected hand in children with unilateral spastic CP.

P22

Cognitive impairment in amputation rehabilitation: an underestimated factor

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Introduction: Major cause of amputations of lower extremities (LE) is peripheral arterial disease (PAD) and/or diabetes, which is negatively associated with cognitive impairments. Screening for cognitive impairments is recommended in the guideline, but no suggestions for screening and addressing outcomes are done. Prevalence of cognitive impairment in patients with LE in our center is unknown and possibly underestimated. The MoCA is an easy and fast method to screen for cognitive impairments.

Objective: To determine the prevalence of cognitive impairment in patients with LE amputation.

Patients: Patients with LE referred for rehabilitation between July 2022 and March 2023 with PAD as a cause and/or aged ≥60 years

Methods: Screening for cognitive problems using the Montreal Cognitive Assessment (MoCA); range 0-30; cut off for mild cognitive problems is ≤26.

Results: Twenty one patients were screened using the MoCA, of whom 19 males. Median age was 73.5, 52% had a transtibial amputation and 43% a transfemoral amputation. Median MoCA score: 24(range 15-27), with 17(80%) scoring ≤26.

Discussion & Conclusion: The majority of patients shows signs of mild cognitive problems, which was unexpected by the treatment team. Cognitive impairments are an important issue to address in order to optimize treatment results.

Clinical Message: Screening should be implemented in existing programs and teams should be educated in how to translate the outcomes to adequate treatment approaches.

Added value for patients: Screening for cognitive problems in patients in amputation rehabilitation allows the team to tailor treatment to their abilities and make treatment more effective.

P23

Falls in people with diabetes and peripheral neuropathy and their association with physical activity and gait quality

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Introduction: Peripheral neuropathy in people with diabetes mellitus is a strong predictor of falls. Peripheral neuropathy can lead to functional decline and impaired gait quality, however it is unknown whether daily-life physical activity and gait quality are associated with falls.

Objective: To investigate fall incidence and its association with physical activity and gait quality characteristics.

Patients: People with diabetes and neuropathy (IWGDF risk 2-3).

Added value for patients: Identification of physical activity and gait characteristics related to falls.

Methods: We longitudinally followed 60 participants for 12 months. Falls were reported in a fall diary. Participants wore a tri-axial accelerometer for seven consecutive days to obtain data on physical activity and gait quality measures. We tested associations between falls and physical activity and gait quality using forward multivariate logistic regression analysis, with characteristics selected via Student's t-test ($p<0.2$).

Results: In total, 30 participants (50%) fell during follow-up. Fallers walked slower than non-fallers (0.79±0.17 vs. 0.90±0.23 m/s), which was significantly in multivariate analysis ($p=0.035$). Compared to non-fallers, fallers were more often female (27% vs. 10%), had more consistent gait pattern (0.55±0.14 vs. 0.49±0.14 psd), lower maximum standing duration (8.61±3.44 vs. 9.89±3.07 min) and less periods of lying (10±6 vs. 12±5), although none significantly associated with falls in multivariate analysis.

Discussion and conclusions: Within 1 year, 50% of people with diabetes and neuropathy fall. Only a lower walking speed is associated with falling.

Clinical message: A lower walking speed may indicate a reduced ability to avoid a fall and should therefore be identified.

P24

Functional popliteal angle tests improve diagnostics of short hamstring muscle-tendon lengths in patients with a central neurological lesion

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Introduction: Crouch gait, characterized by increased knee flexion at initial contact, is a common gait pathology in patients with a central neurological lesion (CNL) and often caused by short or spastic hamstring muscles. Diagnosing hamstring muscle spasticity and length deficits involves a physical examination and 3D clinical gait analysis while walking at comfortable and fast speeds. However, other musculoskeletal impairments (e.g. muscle weakness) might hinder patients from increasing gait speed through increases in step length possibly leading to false positive diagnoses. We address this diagnostic limitation by establishing the accuracy of a new exercise protocol in determining a patients' maximum hamstring muscle-tendon lengths and lengthening velocities during 3D clinical gait analysis.
Methods: Retrospective data analysis of 25 CNL patients and a prospective experimental study in 10 healthy young adults were conducted. The new exercise protocol included: walking at comfortable speed, walking as fast as possible, walking with large steps, and performing a functional popliteal angle test slowly and as fast as possible. Standard OpenSim workflows were used to compute hamstring muscle-tendon lengths and lengthening velocities.
Results: Patients and healthy controls used largest hamstring muscle-tendon lengths during the functional popliteal angle tests, followed by walking with large steps and walking as fast as possible. Compared to healthy controls, muscle length reserve capacities in patients with a CNL were significantly lower and diminished by ~50%.
Discussion: To minimize false positive diagnoses, clinicians should consider incorporating the functional popliteal angle test and walking with large steps into the diagnostics of crouch gait.

P25

Adaptive gaming solutions in relation to hand function impairment in children and young adults with neuromuscular diseases

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Introduction
Emotional and social aspects of gaming are especially relevant for children with disabilities, hindering meeting friends physically. Despite expanding adaptive gaming possibilities, the ability to play is not self-evident. Furthermore, the facilitation of adaptations for patients with neuromuscular diseases (NMD) is complicated by their ongoing deterioration in hand function.

Objective
Assess which parameters of hand function are associated with the degree of gaming adaptation required.

Patients
Participants with a NMD, aged 8-25 years.
Added value
Estimating the suitable level of adaptation based on easily obtainable clinical parameters.
Methods
Prospective observational study. Outcome measures: joint mobility and strength of the upper extremities, and dynamometer scores for grip, key grip and three-jaw chuck grip. Four setups were created: no adaptation, tripod, adapted switches, head and/or mouth controls. The most suitable adaptation was determined by an occupational therapist.

Results
15 gamers with varying impairments participated. Difference in mobility over all setups was bilaterally significant for shoulder abduction only. Differences in strength were found for the infraspinatus, subscapularis, supinator, wrist extensors/flexors and extensor pollicis longus bilaterally, and for the right triceps and pronator teres. Additionally a trend of deterioration was observed for the vast majority of the other muscles tested, and similarly for all grasps.

Discussion and conclusions
For NMD patients limitations in strength determine the adaptation needed rather than limitations in joint mobility.

Clinical message
Adaptations will always come into being by individual customization. In support of that, the results provide direction with respect to the initiation and degree of adaptation needed.

P26

Outcomes of an Early Intensive Neurorehabilitation programme for patients with Disorders of Consciousness: results of the DOCTOR study.

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Introduction
Early intensive neurorehabilitation (EIN) for patients with disorders of consciousness is recommended to ensure the best possible outcomes. However, outcomes of the Dutch EIN programme of 14 weeks, for patients aged ≥16 are unclear.
Objective
To study the following outcomes of EIN in patients with DOC due to traumatic brain injury (TBI) and non-traumatic brain injury (NTBI):
1) level of consciousness (LOC)
2) course of recovery of consciousness
3) mortality
Patients
Eligible DOC-patients aged ≥16 years admitted to EIN who signed informed consent.
Methods
A prospective cohort study. LOC was determined weekly using the Coma Recovery Scale-Revised.
Results
We included 104 participants (60 TBI, 44 NTBI); median age of 39 years. Overall, 44% regained consciousness and 32% reached the command following LOC. Differences were found between patients with TBI and NTBI (50% versus 36% regained consciousness). 6 participants died, all with NTBI. No difference in age was found between participants who regained consciousness and who did not. Improvement in level of consciousness occured in all weeks of EIN.
Discussion and conclusion
During EIN almost 50% of the patients regained consciousness. Recovery occurs throughout the whole EIN programme. Our outcome rates are slighly less than in studies from other countries, which can be explained by a different case mix.
Clinical message
EIN is a useful programme for recovery of consciousness, so DOC-patients who survived acute care should be referred to EIN.
Added value for patients
Family of DOC-patients can be informed about substantiated number regarding possible outcomes of DOC.

P27

The use of virtual reality in interdisciplinary multimodal pain treatment: experiences of healthcare professionals and patients

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Introduction
A treatment option for people with chronic pain is an Interdisciplinary Multimodal Pain Treatment program (IMPT). A way to broaden the IMPT programs could be Virtual Reality (VR).

Objective
This research aims to explore how, when, and for whom VR can be used in a meaningful way during IMPT.

Patients
Patients with chronic pain being treated in one of the two participating rehabilitation centres.

Added value for patients
VR could be a meaningful addition to physical treatments to create more variety, enhance generalization, provide relaxation and, insight for both healthcare professionals as patients, in the patient's behavior.

Methods
An action research design was used with reflection sessions and semi-structured interviews. Analyses were performed by directed content analyses.

Results
Seven healthcare professionals, and 20 patients participated. Both experienced VR as useful in therapy as an addition and not a substitution. The VR was used in all patients as a diagnostic and intervention tool either at the rehabilitation center or at home.

Discussion and conclusion
VR could be a useful addition to IMPT. More research should be performed to establish the (additional) effects of VR on the participation of patients in daily life and on how the VR could be used substitution for an IMPT program.

Clinical message
As a diagnostic tool, the VR was used to gain insight into pain beliefs, cognitions, and physical abilities of the patients. As an intervention tool, there were roughly three goals: creating a balance between relaxation and competition, graded activity, or exposure in vivo.

P28

Cross-cultural translation and content validity of the Dutch Determinants of Physical Activity Questionnaire (DPAQ) in a rehabilitation population

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Introduction: Patients with stroke are less physically active than healthy controls. Understanding barriers to physical activity in stroke patients can help to tailor treatment. The Determinants of Physical Activity Questionnaire (DPAQ) is a 34-item 11-domain questionnaire, developed in Australia to assess barriers to physical activity. It proved reliable and valid in healthy subjects.
Objective: To translate the DPAQ cross-culturally into Dutch and evaluate the content validity (comprehensibility, comprehensiveness, and relevance).
Patients: Stroke patients ≥ 18 years attending outpatient rehabilitation and their healthy peers.
Methods: The DPAQ was translated according to international guidelines. Content validity was assessed in a pilot including 7 stroke patients using think aloud and cognitive debriefing. Audio-recorded data were transcribed, coded and analyzed. Adaptations were made, after which the adapted version was pilot tested again in 7 stroke patients and 7 healthy peers.
Results: Stroke patients in pilot one reported comprehensibility problems mainly resulting from double negative statements, vocabulary, and complex sentence structure. The introduction was not understood as intended and one response option was considered irrelevant. Adaptations were made, after which pilot two detected no major comprehensibility problems. Most participants considered the items as relevant and covering the main barriers to physical activity.
Discussion and conclusions: Comprehensibility and relevance problems in the Dutch DPAQ were detected and adjusted, which should improve reliability and validity, however cross-cultural validity may be negatively affected. Validity, reliability, and feasibility in daily practice should be investigated.
Clinical message: The adapted Dutch DPAQ seems promising to assess barriers to physical activity.

P29

Longitudinal relationship between strength of the dorsiflexion muscles and dorsiflexion angle during swing in subacute post-stroke patients

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Introduction: Decreased ankle dorsiflexion during swing is common in the gait cycle post-stroke. Little is known about longitudinal relationships between ankle dorsiflexion strength and effects on ankle kinematics during walking.
Objective: To study the relation between dorsiflexor muscle strength and dorsiflexion angle during swing in sub-acute stroke patients.
Patients: Unilateral hemiparetic subjects, maximal six weeks post-stroke (n=26).
Methods: Data from a prior study database was assessed over a period of six months: dorsiflexor strength (Motricity Index (MI), assessed every other week and dorsiflexion angle during swing (3D gait-analyses (VICON)) assessed in week 1, 9, 17, 26. Linear regression analyses was used to analyze relationships between changes in MI and dorsiflexion angle during swing over time.
Added value for patients: A better understanding of the gait cycle post-stroke can potentially optimize current rehabilitation programs.
Results: Twenty-six participants were analyzed. No significant relationships between change in dorsiflexor strength and dorsiflexion angle in total swing phase (β=0.049, P=.862) and in different subphases of swing (initial (β=-0.058, P=.842), mid(β=0.089, P=.748) and terminal(β=0.067, P=.799)) were observed.
Discussion and conclusions: These results suggest that during rehabilitation phase ankle dorsiflexion strength is not related to dorsiflexion angle in swing phase in sub-acute stroke patients. It is questionable whether strength determined by an isometric assessment can predict ankle kinematics in the gait cycle.
Clinical message: During rehabilitation an improvement of dorsiflexor strength will likely have minor to no impact on the dorsiflexion angle during swing.

P30

Improvements in walking speed and step-width variability following ankle-foot orthosis treatment are related to improved perceived stability in adults with neuromuscular disorders

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Introduction
Calf muscle weakness due to neuromuscular disorders often causes gait instability and related falling. Ankle-foot-orthoses are provided to improve walking. However, their effects on perceived walking stability in relation to objective measures are not yet investigated.

Objective
To examine the relationships between changes in biomechanical measures of gait stability and change in perceived stability following AFO treatment in adults with neuromuscular disorders.

Patients
Seventeen adults with bilateral calf muscle weakness who were provided with AFOs.
Added value for patients
Improved understanding of gait stability could improve treatment outcomes.
Methods
Biomechanical data of shoes-only walking (baseline) and walking with AFOs (3 months follow-up) were analyzed. We assessed the relationships between changes from baseline to follow-up on biomechanical gait parameters (walking speed, margins of stability in medio-lateral (MoS-ML) and anterior-posterior direction (MoS-AP), and variability of MoS-AP and MoS-AP, step-length, and step-width), and perceived walking stability (measured on a 10-point scale) with Spearman correlations.

Results
Changes in walking speed and step-width variability were correlated with changes in perceived stability ($r=0.655$, $p=0.004$, and $r=-0.505$, $p=0.039$). Changes in MoS-AP and variability of MoS-ML showed trends toward significant relationships with changes in perceived stability ($r=0.433$, $p=0.083$, and $r=-0.428$, $p=0.086$), while the other measures were not related ($p\geq0.562$).

Conclusion
Improvements in walking speed and step-width variability following AFO treatment in patients with bilateral calf muscle weakness were moderately related to improved perceived stability.

Clinical message
Objectively measured gait stability could enhance our understanding of perceived changes in stability following AFO provision, and improve evaluation of treatment.

P31

Perceived barriers and facilitators of behavioral change towards a more active lifestyle in people living with neuromuscular diseases

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Background
Little is known about why people living with neuromuscular diseases (NMD) experience difficulties to integrate regular physical activity and exercise into their lifestyle.

Objective
To explore perceived barriers and facilitators of behavioral change towards a more active lifestyle in slowly progressive NMD.
Patients
Nineteen patients (12 females, age range 28 to 73 years) with 4 different NMD.

Added value for patients
To gather information for further development of interventions for promoting physical activity in NMD.

Methods
We used data from participants who were allocated to a physical activity program as part of an ongoing randomized controlled trial. The program included coaching sessions using motivational interviewing techniques. All sessions were audio recorded and a random selection was analyzed (until data saturation) with thematic analysis using the International Classification of Functioning, Disability and Health (ICF) as a framework.

Results
Barriers on different ICF domains included; pain, fatigue, fear (ICF domain 'body functions and structures'), exhaustion, harmonization with other aspects of life ('activities and participation'), financial opportunities and cold weather ('environmental factors'). Facilitators included; physical and mental improvements following the program ('body functions and structures'), learning strategies, such as planning ('activities and participation'), and disease acceptance ('personal factors'). Social support or the lack thereof and mobility devices ('environmental factors') could serve as a barrier and facilitator.

Discussion and conclusions
We found barriers and facilitators on all ICF domains.

Clinical message
Further development of interventions for promoting physical activity in NMD may focus on facilitators, including improving disease acceptance and learning strategies.

P32

Identification of different functional hand grips using a sensor glove: reproducibility in healthy subjects

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Measuring arm and hand function in patients is challenging. Current methods mostly rely on the opinion of an examinator at a single moment in a structured clinical setting, or on patient-reported outcome measures. This study investigates the within-subject and between-subject reproducibility of the multi-array signals of a sensor glove (Cynteract, featuring eleven sensors representing relative rotations of ten joints in the hand) during the performance of five manual tasks in healthy participants (n=10). Three isolated tasks involved reaching and grasping a daily object with either a cylinder grip, tripod pinch grip or lateral pinch grip. The other two tasks consisted of compound movements including a cylinder grip or tripod pinch grip. Secondary aims were i) the recognition of the cylinder and tripod pinch grip within the compound movements, and ii) assessment of the mutual distinguishability of the three isolated hand grips. The within-subject reproducibility was very high for all tasks (intraclass correlation coefficients (ICCs) > 0.98), while the between-subject reproducibility had a very broad range (percentage recognized with ICC > 0.80 ranged from 8.1% to 85.7%). The tripod pinch grip was very well recognized in the compound movement (mean ICC 0.9368). However, the cylinder grip was poorly recognized in the compound movement task (mean ICC 0.645). Distinguishability of the three isolated grips was good.

P33

The Use and Teaching of the International Classification of Functioning, Disability and Health (ICF) framework in Dutch Medical Schools: A National challenge in Rehabilitation Medicine Education.

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Background: The ICF framework incorporates medical care, attention to the patient's disease burden and participation in society. The ICF framework is supposed to be addressed in all expert fields of the Dutch medical curriculum; however, it is not known how the ICF framework is implemented during RM teaching. The delivery of the ICF framework will be explored using Merrill's first principle for instruction.

The research questions:
- Is the ICF framework taught in RM training of all eight Dutch medical schools in The Netherlands, and if so, how is it designed and delivered in terms of Merrill's model?
- According to RM staff, what is an effective way to deliver the ICF framework in RM education to medical students in the Netherlands?

Methods: A qualitative two-step evaluation of the educational material of the RM teaching of the ICF is made. The principal investigator assessed systematically the eight medical school principal educators teaching materials and made comparisons. The delivery of the ICF framework is evaluated in two Delphi rounds with the same eight educators.

Results and discussion: The educational material covered all elements of the ICF framework. Based on Merrill's model, the activation, demonstration and application principles of instruction are present. Principal educators have shared opinions on what and how to teach the ICF framework in RM. The point of debate is who should educate the ICF framework. The implementation of the ICF framework into everyday medical practice is not met in the Master phase and needs extra effort in future.

P34

Triage of stroke patients after hospital admission, who goes where?

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Introduction
Knowledge on application of triage guidelines is scarce.
Objective
Describe patient / stroke characteristics regarding discharge destination.
Patients
Hospital based stroke population
Added value for patients
Information on patient and stroke characteristics with different discharge destinations supports the triage process.
Methods
Sociodemographic and stroke characteristics (age, sex, NIHSS (National Institutes of Health Stroke Scale), hospital stay and discharge destination (home, MSR-multidisciplinary specialist rehabilitation, GRZ-geriatric rehabilitation, other)) were extracted from medical records.
Results
479 Patients were included. Male/female 253/226, mean age 71.0 years (SD14.0).
Of these, 222 (46.3%), were discharged to their home, 116 (24.2%) to GRZ, 60 (12.5%) to MSR and 81 (16.9%) to other destinations. The proportions of patients younger than 80 years were 53% in GRZ and 95% in MSR. (p=0.000, Chi-square).
Patients discharged home had a statistically significantly shorter hospitalization and lower NIHSS than those discharged to the MSR or GRZ (3.0 (SD2.3) versus 14.0 (SD10.0) and 13.7 (SD8.1) days and 4.8 (SD5.2) versus 8.0 (SD6.5) and 7.5 (SD5.3), respectively). Their average age 68.5 (SD14.1) was significantly higher as compared to MSR (60.6 (SD11.2)), and lower compared to the GRZ group (78.2 (SD9.6)). (All $P<0.05$, ANOVA).
Discussion and conclusions
Patients discharged home were younger, stayed shorter in hospital and had less neurological deficit compared to institutionalized patients poststroke. Apart from age, there were no differences between the MSR and GRZ group. GRZ is not exclusively for eldery patients.
Clinical message
Comparing discharge data helps in optimizing the triage of stroke patients and can serve as benchmark.

P35

The nebula rain game: a measure of visuospatial neglect? – a pilot study

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Introduction: The Nebula rain game (NRG) s a newly developed task to measure visuospatial neglect.
Objective: 1) examine feasibility of the VSN by evaluating the completion rate on the NRG; 2) examine general psychometric properties of the NRG in terms of a) score distribution; and b) floor and ceiling effects; and 3) examine whether participants with VSN, as indicated by usual testing, have different scores on de NRG; indicating correct detection of VSN by the NRG.
Methods: stroke patients suspect for VSN were administered to the traditional assessment protocol for VSN. This protocol included traditional paper-and-pencils tests such as the bell's cancellation test, a line bisection test and the Catherine Bergego Scale, as well as the newly developed NRG. Patients were assigned to a left-sided VSN, a right-sided VSN or no VSN group based and their performance on the traditional paper-and-pencil tests.
Results: administering the NRG was feasible as 80 out of 84 participants were able to complete the NRG. No floor effect was found. As expected a ceiling effect was present. Overall performance on the NRG and performance on panel 1 of the NRG was affected by the presence of VSN, especially seen in participants with left-sided VSN+. However, this was not found in the right-sided VSN+ group on both panel 1.
Conclusion: the NRG shows good promise as a measure for VSN addressing different characteristics of VSN, such as performance in a more dynamic situation and performance in the extrapersonal space.

P36

PReCARE - Evaluation of a PReparatory eHealth intervention for patients with a low socioeconomic position in CArdiac REhabilitation: a feasibility study.

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Introduction: Cardiac rehabilitation (CR) often yields less successful outcomes in patients with a low socioeconomic position (SEP), largely due to low patient activation. Therefore, we co-designed a digital application that aims at increasing patient activation in people with a low SEP in the period preceding CR by providing daily preparatory messages.

Objective: To evaluate the feasibility of the application in cardiac patients with a low SEP and, secondary, to explore changes in patient activation after using the application.

Patients: Twenty cardiac patients with a low SEP, all referred to CR.

Added value for patients: The intervention offers support during the period preceding CR, potentially improving patient activation and, ultimately, CR outcomes.

Methods: In a feasibility study, participants used the application for 1 to 5 weeks preceding CR. Feasibility was evaluated based on application usage data and the USE questionnaire (usability, usefulness, and satisfaction). Changes in patient activation levels were assessed with the PAM-13 questionnaire.

Results: Most participants (70%) used the app daily. Median scores (IQR) were 4 (1.5) for usability, 4 (1.0) for satisfaction and 3 (1.0) for usefulness, suggesting the application was user-friendly, but could offer more benefits. Mean (SD) patient activation level was 73 (12) at referral, and 70 (9) prior to the start of CR (p=0.48).

Discussion and Conclusions: The tailored eHealth intervention appeared feasible and engaged cardiac patients with a low SEP. Optimisation is needed to enhance patient activation.

Clinical Message: Co-designed with low SEP patients, eHealth interventions can be successfully adopted, potentially improving CR outcomes.

P37

The use of OPTIMAL motor teaching strategies in physiotherapy for stroke patients

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Introduction Effectiveness of physiotherapy interventions for patients after stroke depends not only on the content of therapy, but also on teaching strategies employed by therapists. However, little is known regarding the teaching strategies that are used in this setting.

Objective Using the OPTIMAL theory for motor learning from Wulf and Lewthwaite (2016) as a framework, this study aimed to gain insight in the current use of (1) autonomy, (2) expectancies, and (3) attention in physiotherapy.

Patients Twenty-one patients after stroke (subacute/chronic phase).

Added value for patients This study is the first step in optimizing teaching strategies during physiotherapy sessions to maximize treatment effects and transfer to daily life for patients recovering from stroke.

Methods Forty-one sessions given by ten physiotherapists were analyzed using the novel OPTIMAL Strategies Observational Tool (OSOT). Interviews were held with physiotherapists to uncover why they chose the observed teaching strategies.

Results Therapists mostly applied strategies to support autonomy, enhance expectancies, and promote an external focus in contrast to therapist-controlled strategies, lowering expectancies,

and promoting an internal focus. The interviews showed that focus of attention was often applied undeliberately.

Discussion/Conclusion This observational study reveals how and to what extent strategies to (1) support autonomy, (2) enhance expectancies, and (3) promote attention are applied in physiotherapy for patients after stroke.

Clinical message Using strategies that support autonomy, enhance expectancies, and promote an external focus can augment stroke patients' motor learning. There are opportunities for optimizing motor teaching by increasing knowledge on and deliberate application of focus of attention.

P38

Factors associated with no clinical meaningful improvement in the 6MWT in patients with chronic musculoskeletal pain who report clinical improvement on disability after interdisciplinary multimodal pain treatment: prospective cohort study

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Introduction: Chronic pain is a major problem affecting millions of people in the Netherlands. Interdisciplinary multimodal pain treatment (IMPT) programs offer long-term benefits for patients with chronic musculoskeletal pain (CMP). Standardized outcome measures used for IMPT program evaluation are the Pain Disability Index (PDI) and the 6-minute walk test (6MWT). Clinical practice, however, shows inconsistencies between these outcomes, where the 6MWT lacks clinical significance regarding clinical improvement. Factors associated with this lack of significance and its suitability in assessing CMP patients remain unknown.
Objective: Identify factors associated with no clinically meaningful improvement in the 6MWT among patients with CMP who reported clinically important improvement in disability after a 10-week IMPT program.
Patients: 938 patients with CMP.
Added value for patients: This study provides valuable insights for healthcare providers in customizing treatment plans.
Methods: Participants from six treatment centers in the Netherlands were assessed at baseline and post-treatment. The variables considered included the 6MWT, PDI, and the Hospital Anxiety and Depression Scale (HADS), among others. Data analysis involved descriptive statistics and logistic regression models.
Results: Increased scores in working capacity and HADS anxiety at baseline were associated with a lack of clinical significant improvement in the 6MWT.
Discussion and conclusions: Inconsistencies in instructions, working capacities and anxiety levels at baseline could have influenced participants' motivation and effort during the 6MWT. It, therefore, is debatable whether the 6MWT should be used as IMPT program outcome measurement.
Clinical message: It is recommended to choose patient-specific activity performance tasks for a more accurate assessment.

P39

Effects of surgical intervention in patients with an equinovarus foot deformity following stroke

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Introduction
Stance stability after stroke can be compromised by equinovarus of the foot. Treatment options include orthotics, chemodenervation of involved overactive muscles and surgical correction of the foot, in order to restore plantigrade loading. Surgery has the advantage of being a permanent solution for walking barefoot again.

Objective
To assess the results of ankle-foot surgery on patients' perception, functional scales, spatiotemporal parameters and kinematics.

Patients
15 stroke patients with foot equinovarus.

Added value for patients
Improved gait capacity after surgery.

Methods
3D gait analysis with the Plug in Gait model (for joint kinematics and spatiotemporal parameters) and the Ghent foot model (De Mits et al., 2012; for segment kinematics) was performed before and after foot surgery. Questionnaires were used to assess the patients' perception.

Results
First results show a significant decrease in the hindfoot equinus (angle hindfoot-shank) for all measured subjects (N=9) at initial contact (mean 12,3°; SD 9,1; p=0,0036), see figure 1. The (self-selected) walking velocity did not change significantly among patients (mean change 0,025 m/s; SD 0,126; p=0,576).
Due to work in progress, results on patients' self-reports, functional scales and other 3D-gait parameters will follow at the conference.

Discussion and conclusions
First results show more plantigrade loading of the affected foot after surgical intervention, thereby improving stance stability.

Clinical message
Foot surgery seems effective in improving stance stability for individuals with equinovarus foot after stroke, enabling them to walk barefoot.

P40

The effects of diversity on patient-reported recovery from COVID-19 following hospitalization

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Introduction Many people suffer from long-term health effects of COVID-19. The effects of diversity on patient-reported recovery are unclear.

Objectives To assess the effects of diversity on recovery from COVID-19 in a multicenter cohort study.

Patients Adults hospitalized for COVID-19.

Added value for patients Recognition of patient groups with increased care needs.

Methods Patient-reported recovery, as compared to pre-COVID-19 state of health and mind, was assessed at 3, 6, 12, and 24 months post-hospitalization and dichotomized into good (mostly/completely recovered) and poor (half/somewhat/not recovered) recovery. Generalized estimating equations were used to assess the effects of diversity (age, sex, migration background, education level), corrected for pre-existing comorbidity (obesity, diabetes, heart disease, lung disease) and disease severity (days in hospital), on recovery.

Results 539 patients (age 60.2±11.0 years, 373 [69.2%] male, hospitalization 13.0 [6.0-28.0] days) were included. At 3, 6, 12, and 24 months post-discharge, 62.9%, 73.7%, 68.1%, and 76.9% of patients reported good recovery, respectively, which improved significantly over time (adjusted odds ratio [95%CI] 2.5 [1.7-3.5], $p<0.001$). Adjusted for pre-existing comorbidity and disease severity, lower education (0.6 [0.4-1.0], $p=0.033$) was independently associated with poorer recovery and a trend was found for non-European background (0.7 [0.5-1.0], $p=0.064$).

Discussion and conclusion The majority of patients recovered well from COVID-19, however, still 23% of patients reported poor recovery at 2 years follow-up. Patients with low education or non-European background were less likely to recover well.

Clinical message More attention should be paid to patient groups with poor recovery even 2 years post-hospitalization for COVID-19.

P41

The clinical relevance of power and work in evaluating the effect of chemodenervation of the rectus femoris muscle in stiff-knee gait

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Introduction
Foot-clearance problems due to rectus femoris (RF) overactivity are common in patients with spastic paresis and stiff-knee gait (SKG). Treatment options include chemodenervation and surgery (e.g. RF transfer). 3D gait analysis supports clinical decision-making regarding selection for surgical intervention. Generated power and work around push-off could be useful, but their clinical relevance is uncertain.

Objective
To assess if power and work are useful parameters to evaluate the effect of RF-chemodenervation in patients with SKG due to spastic paresis.

Patients
13 adults with SKG and RF-overactivity.

Added value for patients
Improved selection of patients for RF-surgery.

Methods
3D gait analysis was performed before and after RF-chemodenervation. Data-analysis included pre- and post-comparison of peak power absorption and total negative work from double support until maximum knee flexion during swing.

Results
The increase in peak power absorption (0.06±0.23J/s) and total negative work (0.01±0.02J) was not statistically significant. Knee range of motion (ROM) (4.8±8.0°, $p=0.04$) and knee flexion angular velocity (peak 27.3±32.3°/s, $p=0.01$, foot-off 46.2 ± 67.4°/s, $p=0.05$) improved significantly. Walking speed increased from 0.75±0.3m/s to 0.81±0.3m/s ($p<0.01$).

Discussion and conclusions
Power and work were unaffected by treatment, possibly due to their covariance with other variables (e.g. walking speed). Therefore, they seem unhelpful in clinical decision-making regarding SKG and referral for surgical intervention for RF-overactivity.

Clinical message
In the evaluation of effect of RF-chemodenervation in SKG, walking speed and knee ROM remain the more relevant parameters as opposed to power and work. 3D gait analysis remains an important diagnostic tool in this context.

P42

How do children and adolecents rate sitting and rolling in their manual wheelchair?

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Introduction
A good wheelchair-child-interface is an important prerequisite to be able to participate in meaningful activities. This is achieved through proper adjusting and modifying of the wheelchair for optimal postural support (sitting) and functioning (e.g. rolling). When parents and/or children better understand factors that influences the wheelchair-child-interface, they can have a more equal role in shared-decision-making during the wheelchair-fitting-process.

Aim of study:
To gain insight in how children/parents perceive the wheelchair-child-interface related to rolling and sitting.

Method
Children and adolescents (aged 5-18 yrs) or their parents filled out the free available smart screening-tool 'https://www.checkjezit.nl/hoe-geschikt-is-je-rolstoel/check-je-zit/'.

Results
In total 35 children and adolescents (13 +/-4 yrs, M:13, F:22) with diagnoses e.g., Cerebral Palsy, Muscle Disease or Spinal Cord Injury, filled out the screening-tool. Sitting and rolling was rated 'poor/mediocre' by respectively 37% and 31%, 'reasonable' by 28% and 23% and 'good' by 34% and 45%. Sitting and rolling was 'tiring' in, respectively, 54% and 63% and 'painful' in 31% and 20% of the children. Fiftyfive % 'lacked support' by their wheelchair and 69% thought 'sitting could be improved'.

Discussion/ Conclusion
A significant portion of the children did not feel adequately supported by their wheelchair and were dissatisfied with sitting comfort or (rolling) ergonomics. By using the screening-tool, children, adolescents and/or their parents also reflected on possible personal improvements e.g.: to sit 'more supported' or 'upright', a better 'shoulder position for rolling' or 'more grip on the handrims'. Insight in perceived wheelchair-related-problems may contribute to shared-decision-making regarding realization of improvements in the wheelchair-child-fitting.

P43

Patient flow problems in spinal cord injury in the Netherlands

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Abstract

Study Design
Prospective cohort study

Objectives
To describe barriers to inpatient rehabilitation admission and discharge for patients with newly acquired spinal cord injury or disease (SCI/D) and to identify modifiable factors through which patient flow can be optimized.

Methods
Inpatients with newly acquired SCI/D referred to a rehabilitation center in the Netherlands between December 2018 till December 2019 were included. Demographic, clinical characteristics and information about waiting days and causes of delay were recorded. Descriptive analysis was used.

Results
In total 105 patients were included; 33 patients (31%) were female, mean age was 59 years. No significant differences in demographic and clinical characteristics were found between patients with and without a barrier for admission. Most common admission barriers were capacity problems in bed availability, nursing and allied health workers. The most frequent discharge barriers were delay for care approval or nursing home and home modifications.

Conclusion
Most frequent admission barriers were capacity problems in beds and staff and most discharge barriers were problems with home modifications, waiting for care approval or nursing home. Recommendations to improve these barriers are early recognition of a potential problem, early communication with patient and/or family about options for discharge and simultaneously initiating home modification plan and exploring temporary accommodation options.

P44

An integrated personalized assistive devices approach to reduce the risk of foot ulcer recurrence in diabetes (DIASSIST): study protocol for a multicenter randomized controlled trial

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Trial registration:
Approved by the Medical Ethics Review Committee of Amsterdam UMC, registered at clinicaltrials.gov: NCT05236660.

Introduction:
Preventing foot ulcers in people with diabetes can reduce costs and increase quality of life. Despite availability of various interventions to prevent foot ulcers, recurrence rates remain high. However, the effects of a combination of multiple interventions offered in a personalized approach are unknown.
Research question:
What are the effects of an integrated personalized multimodal treatment approach on foot ulcer recurrence, cost-utility and adherence to wearing custom-made footwear in people with diabetes who are at high risk of ulceration?
Trial design:
A multicenter randomized controlled trial where participants will be randomly assigned to either usual care or enhanced therapy. Follow-up period is 12 months.
Patients:
126 adult participants with diabetes mellitus type 1 or 2, loss of protective sensation i.e. presence of peripheral neuropathy, a healed plantar foot ulcer or foot amputation in the preceding 4 years, and who are in possession of custom-made footwear.
Methods:
Enhanced therapy consists of usual care, and additionally a personalized treatment approach consisting of: pressure-optimized custom-made footwear; pressure-optimized custom-made indoor footwear; at-home daily foot temperature monitoring; and structured education, including motivational interviewing and personalized feedback on adherence and self-care. Assessments include: barefoot and in-shoe plantar pressure measurements; questionnaires concerning quality of life, costs, self-care knowledge; and physical activity and footwear use monitoring.
Added value/contribution:
With proven cost-utility, effectiveness and usability, this approach can be implemented in healthcare and improve quality of life of many people with diabetes.

P45

The effects of custom-made footwear on stability during walking in people with diabetes and peripheral neuropathy

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Introduction:
Custom-made footwear for people with diabetes and neuropathy effectively reduces peak plantar pressures and helps reduce the risk of foot ulceration. However, this footwear might also introduce instability during walking, which could lead to a higher fall risk.
Objective:
Our aim was to explore the effects of custom-made footwear on stability during walking.
Patients:
46 participants (92 feet) with diabetic neuropathy at high risk of ulceration and in possession of custom-made footwear.
Added value for patients:
Increase physical safety by assessing stability in footwear.
Methods:
Participants completed both barefoot and in-shoe pressure measurements during walking. The maximum velocity of the Center-of-Pressure (CoP) was calculated for four phases of stance, and compared for shod vs barefoot walking. An increase in maximum velocity defined an increase in instability. In secondary analysis we compared feet with and without an amputation at any level of the foot. We used t-tests for statistical analyses.
Results:
The maximum velocity of the CoP for shod vs barefoot walking was lower during midstance ($t(91)=-8.107$, $p<0.001$), but higher during preswing ($t(91)=3.75$, $p<0.001$). The difference between both conditions increased during midstance for amputated vs non-amputated feet but decreased during preswing.
Discussion/Conclusion:
Custom-made footwear can increase instability during the preswing phase of walking in people with diabetic neuropathy. Further research is needed into which footwear design aspects contribute to this change and its effect on biomechanical, clinical and patient-related outcomes such as falls.
Clinical message:
Custom-made footwear can introduce stability issues and should be taken into account while providing footwear.

P46

Exploring patient motivations for being active or sedentary during inpatient stroke rehabilitation: a qualitative interview study

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Introduction: The effects of rehabilitation treatment on reducing sedentary behaviour (SB) and increasing physical activity (PA) are limited. To target PA and SB during inpatient stroke rehabilitation, an in-depth insight in factors influencing physical behaviour is warranted.
Objective: To explore the factors influencing PA and SB, using a model designed to understand behaviour (COM-B model).
Patients: 17 inpatients with stroke (median 63.5 years (IQR=53.5-72.5), 16 male).
Added value for patients: Developing appropriate interventions to target physical behaviour based on the specific needs of inpatients with stroke.
Methods: Alongside a comprehensive evaluation of PA using one-day accelerometry/ behavioral mapping, 17 inpatients with stroke were interviewed about factors influencing their personal PA levels.
Results: Capability was often affected by fatigue. Energy levels were supported by 'taking rest after exercise', but also by 'being active'. The capability to manage behaviour was influenced by personal factors (lack of skills to take rest, focus on being active) and external factors (focus on therapy programme). Opportunities (e.g. facilities, acting on encouragement) were most used by participants with a strong focus on returning to pre-stroke activity levels. Motivation was influenced by boredom (PA served as a distraction) and the desire to 'becoming the person I was before'.
Discussion and conclusions: Insight in Capability, Opportunity and Motivation supports understanding (differences in) physical behaviour and provides leads for targeted interventions.
Clinical message: Interventions to improve physical behaviour in stroke patients should be tailored to the individual needs.

P47

Longitudinal associations between physical activity barriers and physical activity behavior during and after rehabilitation: the ReSpAct cohort study

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Introduction: People with physical disabilities and/or chronic diseases perceive many barriers to engage in physical activity (PA). Little is known about how these PA barriers change during and after rehabilitation, and how this translates to PA behavior.
Objective: To explore longitudinal associations between PA barriers and self-reported PA behavior.
Patients: A heterogeneous group of people with physical disabilities and/or chronic diseases (n=1065) was included from the longitudinal cohort study Rehabilitation, Sports and Active lifestyle (ReSpAct), who received PA counseling after rehabilitation.
Added value for patients: By understanding how changes in barriers affect PA behavior, patients can work with healthcare professionals to overcome these barriers and improve their overall health and well-being.
Methods: Questionnaires were assessed at baseline (3-6 weeks before discharge), 14, 33 and 52 weeks after discharge from rehabilitation. Frequencies of PA barriers were assessed using 5-point Likert-type scales and grouped into three categories: capability, opportunity, and motivation. Self-reported PA minutes per week were assessed with the adapted-SQUASH questionnaire. Data were analyzed using longitudinal mixed model analyses.
Results: All barrier groups showed significant negative longitudinal associations with total PA minutes per week (capability: β=-221, $p<.001$; opportunity: β=-76, $p=0.032$; motivation: β=-80, $p=0.010$).
Discussion/conclusion: The results show that decreased PA barriers are associated with increased PA behavior, suggesting that PA promotion strategies may be successful when effectively addressing these barriers.
Clinical message: PA promotion interventions, such as tailored counseling, should focus on overcoming PA barriers during and after rehabilitation, to improve PA behavior in people with physical disabilities and/or chronic diseases.

P48

Netherlands CP Register for children with cerebral palsy: An innovative model for personalized care with patient participation

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Introduction. The Netherlands CP Register is an innovative patient register for persons with cerebral palsy (CP). The register is developed in a unique collaboration of children with CP and their parents, patients' association CP Nederland, researchers and health care professionals.

Aims. The register aims to support personalized and meaningful care for children with CP throughout The Netherlands.

Design. The CP Register is a combined follow-up surveillance and treatment register for children with CP. The follow-up assists in early detection of (secondary) problems by means of a traffic light system, allowing for timely intervention. During intervention periods children are monitored with clinical and patient-reported outcomes and Goal Attainment scaling. Pediatric physiatrists and pediatric orthopedic surgeons integrate the register in their daily care. A dashboard displays the results which will support shared decision making. The CP Register is currently implemented in 15 rehabilitation centers and hospitals nationwide; the number of children with CP included (250) is increasing steadily.

Added value for patients. The Netherlands CP Register informs children with CP and parents comprehensively on the child's development and assists in early detection of (secondary) problems. Discussing patient outcomes and shared goal setting during consultations supports meaningful care.

Expected contribution to clinical practice and research. The CP Register supports active participation of children, parents and professionals in shared goal setting. By analyzing real life data reported by professionals and patients we gain knowledge on (long term) development, intervention effects, and personalized predictions of these effects in persons with CP.

P49

The Strain of Walking in Ambulatory People with Spinal Cord Injury

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Introduction
The number of ambulatory people with spinal cord injury (SCI) is increasing, and recent research showed low physical activity (PA) levels in this group. The strain of walking may play an important role in this unfavorable behavior.

Objective
This study aimed to objectively determine the strain of walking in ambulatory people with SCI.

Patients
Ambulatory people with SCI, time since injury ≥1 year, and independent household walking.

Added value for patients
Knowledge of the strain of walking may help to improve treatment regarding PA in ambulatory people with SCI and thereby health and quality of life.

Methods
Ongoing cross-sectional study. Strain of walking was defined as oxygen consumption during walking (VO2walk), expressed as percentage of peak oxygen uptake (VO2peak). VO2walk was measured by indirect calorimetry during walking at comfortable speed. Participants performed a cardiopulmonary exercise test to determine VO2peak.

Results
Sixteen participants were included. Age was 50.4(15.0) years, 79% were male. All participants had incomplete injuries classified as AID-D, 38% had tetraplegia. The mean VO2walk and VO2peak were 15.0(2.7) and 28.7(7.3) ml/kg/min, respectively. The strain of walking was 55(16)%.

Discussion and conclusion
These preliminary results suggest that the strain of walking in people with SCI is high compared to the strain in able-bodied people (36[7.6]%). More research is needed to evaluate how this affects PA.

Clinical message
The high strain of walking in ambulatory people with SCI may be relevant concerning the level of PA and could be targeted by improving oxygen consumption during walking and peak oxygen uptake.

P50

Ecological validity of clinical gait analysis in children with bilateral spastic cerebral palsy. Influence of the Hawthorne effect and dual-tasks.

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Introduction
In children with cerebral palsy (CP) clinical gait analysis using optoelectronic measurement systems is widely used to objectify gait deviations and select appropriate treatment. In the author's experience, children adapt their gait during such analyses. We hypothesise that observational awareness (the Hawthorne Effect) and/or the lack of dual-tasks during clinical gait analysis influence gait.

Objective
To test the influence of observational awareness and dual tasks on the gait pattern of children with CP. Primary outcome measurement: minimal knee flexion during the single support phase.

Patients
Inclusion criteria were: patients with CP, bilateral spasticity, GMFCS classification I-III, knee flexion gait pattern, age 4-16 years.

Added value
If during an clinical gait analysis, the gait pattern of children with CP does not correspond to their gait pattern during everyday functioning, this may lead to suboptimal selection and evaluation of treatment.

Methods
Subjects are measured during 4 conditions:
- Normal observational awareness without dual-task (conventional gait analysis)
- Normal observational awareness with dual-task
- Decreased observational awareness without dual-task
- Decreased observational awareness with dual-task

Results
Preliminary results indicate increased knee flexion in the condition with both a dual-task and decreased observational awareness.

Conclusion
Observational awareness and lack of dual-tasks might negatively influence the ecological validity of gait analysis in children with cerebral palsy.

Clinical message
Be aware that gait in a laboratory might differ from gait during everyday functioning.
To improve the ecological validity of our measurements, we need to develop new techniques that enable us to measure outside the laboratory.

P51

Return to work up to 1 year in patients hospitalized for COVID-19; the CO-FLOW study

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Introduction: Patients hospitalized for COVID-19 may experience long-term consequences, including inability to return to work (RTW).
Objectives: To evaluate RTW and its predictors in patients up to 1 year after hospitalization for COVID-19.
Patients: Adults who were employed pre-hospitalization for COVID-19 and who were included <6 months post-discharge.
Added value for patients: The course and predictors of RTW may help to guide treatment.
Methods Multicenter cohort study with assessments at 3, 6, and 12 months after hospitalization for COVID-19. RTW was assessed using the iMTA Productivity Cost Questionnaire. Generalized estimating equations with repeated measurements were used to assess outcomes over time.
Results: In the CO-FLOW study, 371 participants were employed pre-hospitalization. At 3, 6, and 12 months post discharge, 50%, 29%, and 15% of participants had not returned to work, and 21%, 21%, and 16% only partially, respectively. ICU admission (adjusted odds ratio (95% confidence interval): 0.17 (0.010-0.30), p<0.001), persistent fatigue (0.93 (0.90-0.97), p<0.001), female sex (0.57 (0.36-0.90), p=0.017), and older age (0.96 (0.93-0.98), p<0.001) were independently associated with no RTW. ICU patients required a longer time to RTW than non-ICU patients.
Discussion and conclusion: One year after hospitalization for COVID-19, only 69% of patients fully returned to work, whereas 15% did not return and 16% partially returned to work. Patients admitted to the ICU, females, those with persistent fatigue and older age were less likely to RTW.
Clinical message: For patients with problems in RTW after hospitalization for COVID-19 vocational support might be needed to facilitate RTW.

P52

Long-term health-related quality of life in out-of-hospital cardiac arrest survivors

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Introduction
Out-of-hospital cardiac arrest (OHCA) may have a considerable impact on health-related quality of life (HRQoL) and emotional well-being.

Objective
To evaluate long-term HRQoL and emotional well-being in OHCA survivors.

Patients
147 consecutive OHCA survivors who received cardiac rehabilitation during March 2011-February 2018.

Methods
Patients completed the 36-item Short Form Health Survey (SF-36) at discharge of rehabilitation (T1), and the Hospital Anxiety and Depression Scale (HADS) at start (T0); and both in November 2022 (T3). Change scores with 95% confidence intervals (95%CI) between these two measurements were calculated using paired samples t-tests with bootstrapping.

Results
In November 2022, 76 patients (27% females, mean age at OHCA 59 years (range 23-77)) were available for long-term follow-up with a median survival time of 8.3 years after OHCA (range 4.4-11.1).
The SF-36 domain physical functioning diminished over time (change score -8,1 (95%CI -13.0; -3.7); p=0.007), while role physical improved (change score 15.5 (95%CI 3.0-28.5); p=0.024). Other domains did not change significantly. HADS anxiety scores did not change over time, while depressive scores became worse (change score 1.1 (CI 0.5-1.8); p=0.001).

Discussion and conclusions
OHCA survivors were stable on most HRQoL domains and anxiety scores but showed more depressive symptoms.

Clinical message
These results suggest that long-term routine monitoring of depressive symptoms after OHCA could be considered.

P53

Everyday Barriers in Communicative Participation According to People With Communication Problems

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Introduction
The ability to communicate is an important requisite of being able to participate in today's society. With the increasing aging population, the population with communication problems is growing (due to e.g. hearing problems, or communication problems after acquired brain damage). The construct communicative participation was introduced in 2006, and the Communication Participation Item Bank (CPIB) was developed, to facilitate meaningful measurement in research and clinical practice.

Objective
Identifying participation challenges experienced by people with communication problems, to develop CPIB items to make the item bank more widely applicable (e.g., language problems).

Patients
Adults with communication problems

Added value for patients
Further development of an instrument that identifies problems in communicative participation and supports the design of participation focused interventions.

Methods
Participants kept a diary (written, video's, photo's) prior to inductive in-depth interviews, in which their diary was discussed, as well as other situations that may arise in everyday life.

Elements of communicative participation situations (concepts) were elicited and overarching themes were identified. New items measuring communicative participation were formulated.

Results
Eighteen interviews yielded 44 concepts, that can be captured in the person, location, topic, mode, moment, and pace of communication. In total, 103 new items were formulated.

Discussion and conclusions

The mode of communication, including digital communication in particular, is a theme not previously mentioned in the literature. Future work should investigate if the newly written items can be added to the CPIB.

Clinical message

Consider the mode of communication when communicating with people with communication problems.

P54

Ultrasound to monitor bone movement within prosthetic sockets: A pilot study

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Introduction: Achieving an optimal stump-socket fit for transtibial prosthetic users remains challenging in clinical practice. Regular check-ups are necessary to control socket fit and address stump tissue damage caused by suboptimal force transmissions. However, the inability to monitor the impact of prosthetic adjustments on in-socket force transmissions limits clinicians from objectively evaluating their prosthetic interventions.
Objective: This research uses b-mode ultrasound to assess the movement of the residual bone within a transtibial prosthetic socket
Added value for patients: Understanding movement of the residual bone within the socket might improve socket fit and reduce stump soft tissue damage.
Methods: Five unilateral transtibial amputees received sub-atmospheric prosthetic sockets. A b-mode ultrasound transducer was mounted on the anterior side of the socket to continuously track movement of the residual bone during five stepping tasks. Ultrasound videos were post-processed in Adobe After Effects to measure the absolute movement of the bone relative to the socket.
Results: Noticeable differences in bone movement among the five stepping conditions and participants were detected. Anterior-posterior movement (mean±SD) ran up to 1.04±0.12cm, and medial-lateral movement was 0.99±0.09cm.
Discussion: We observed considerable tibia movement within the prosthetic socket, however the magnitude varied considerably between participants. Due to the design of this study no conclusive statements can be made regarding the reliability and reproducibility of the results.
Conclusions: The results highlight the potential to investigate residual limb movement while the prosthetic user is engaged in activities.
Clinical Message: The visualized residual bone movement emphasizes the need for regular check-ups and adjustment.

P55

Research priorities in ankle-foot orthotics care; a survey among rehabilitation specialists and patients in the Netherlands

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Introduction:
Although ankle-foot orthoses (AFOs) are a key treatment option in rehabilitation care, evidence on the various aspects of the AFO care process is scarce. Establishing research priorities is needed to conduct impactful research on the AFO care process.

Objective
To establish a priority list of research topics in the field of Dutch AFO care from the perspective of rehabilitation specialist and patients.

Methods
A purposely-designed, online survey using Castor to inventory research topics needing attention was send out to rehabilitation specialists, through the Dutch Association of Rehabilitation Physicians (VRA), and patients, through the patient's association of multiple sclerosis and neuromuscular diseases. Research topics were clustered using inductive methods and consensus among the research team. After clustering, research topics were scored on priority (1-10 NRS) using a follow-up survey.

Results
Research topics mentioned by rehabilitation specialists (n=62) were clustered in eight topics, with the highest priority given to 1) effect of AFO properties on gait (NRS score: 8.3±1.2), 2) selecting the best AFO for the individual (8.2±2.0) and 3) adherence (8.0±1.1). Patients (n=78 MS & n=86 NMD) reported nine topics with the highest priority given to 1) possibilities to test and select the AFO (8.7±1.7), 2) information on what shoes to wear/fit (8.6±1.3) and 3) comfort (8.4±1.8).

Discussion and conclusions
Rehabilitation specialist and patients have different research priorities, which should be taken into account when designing study protocols on AFOs.

Clinical message
To accommodate patients' research priorities more information on and testing of AFOs seems desirable in clinical care.

P56

The effectiveness of interventions on spasticity applied in the first three months after stroke: A systematic review

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While being mostly treated in the chronic phase, spastic paresis may already develop in the first weeks after stroke. However, effects of interventions in this early phase are unknown. We aimed to synthesize the available evidence on the effectiveness of early applied (< 3 months) interventions in terms of spasticity reduction and improvements in ICF activity level, and compare the effectiveness of early versus late interventions.

A systematic literature search was conducted and yielded 26 studies. Ten studies (n=940) concerned treatment with botulinum toxin (BoNT), and showed significantly lower levels of spasticity expressed by the Modified Ashworth Scale (MAS) or electromyography (EMG) in the intervention group. Four out of six studies on electrical stimulation (n=335) showed significant lower MAS-/Composite Spasticity Scale (CSS)-scores after treatment. Other interventions (transcranial stimulation [3 studies; n=131], spasmolytics [1 study; n=38], orthotics [3 studies; n=197], and robot-assisted therapy [3 studies; n=123]) showed inconclusive results. Effects on ICF activity level could not be established due to limited data and high heterogeneity. Two studies compared early and late BoNT treatment, of which one study showed significant benefit for early intervention.

In conclusion, this study showed that early botulinum toxin treatment effectively reduces spasticity and that electrical stimulation may be effective. More research is needed to compare the effects of early versus late intervention, and to study the effects on the ICF activity level and the effectiveness of the other interventions. Meta-analysis was hampered by heterogeneity of outcome measures used. Using standardized core sets could improve future trials.

P57

Measurement properties of the Dutch versions of QuickDASH and PRWHE in patients with complaints of hand, wrist, forearm and elbow

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Introduction
The shortened version of the Disabilities of the Arm, Shoulder and Hand (QuickDASH) and Patient Rated Wrist/Hand Evaluation (PRWHE) are commonly used questionnaires to assess patient-reported hand function. Information about the quality of their measurement properties in patients with nontraumatic musculoskeletal complaints of the hand or wrist is scarce.

Objective
Assess measurement properties (internal consistency, construct validity, test-retest reliability, responsiveness and floor or ceiling effects) of the Dutch language versions of the QuickDASH and the PRWHE in these patients.
Patients
Adult outpatients with complaints of hand, wrist, forearm and/or elbow, classified as specific or nonspecific CANS.
Added value for patients
Better understanding of measurement properties is necessary to guide the use of the studied questionnaires.

Methods
Measurement properties were assessed according to COSMIN recommendations.

Results
QuickDASH and PRWHE were filled out by 132 patients. Internal consistency of QuickDASH (Cronbach's α=0.92) and PRWHE (Cronbach's α=0.97) was high. Accordance with predefined hypotheses for construct validity was 62% for both questionnaires). Test-retest reliability of QuickDASH (ICC=0.90) and PRWHE (ICC=0.87) was good. Both QuickDASH (AUC=0.84) and PRWHE (AUC=0.80) showed good responsiveness. No floor or ceiling effects were present.

Discussion and conclusions
Measurement properties of Dutch language versions of QuickDASH and PRWHE were very similar in this study. Test-retest reliability and responsiveness were good for both QuickDASH and PRWHE. Construct validity could not be demonstrated sufficiently.

Clinical message
Measurement properties of QuickDASH and PRWHE were evaluated in an important, though yet understudied target population. Their measurement properties were similar in patients with (non)specific CANS.

P58

Health-related physical fitness in patients with complaints of hand, wrist, forearm and elbow: an exploratory study

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Introduction
Physical fitness of patients with complaints of hand or wrist and its possible determinants are unknown.

Objective
Assess health-related physical fitness (HRPF) in these patients, compare HRPF with reference values of healthy persons, explore whether HRPF was correlated with symptom severity, upper limb function (ULF) and physical activity (PA).

Patients
Adult outpatients with complaints of hand, wrist, forearm and/or elbow diagnosed as CANS.

Added value for patients
Assess whether HRPF is altered in these patients.

Methods
Cardiorespiratory fitness, handgrip strength and body composition, self-reported symptom severity, ULF and PA were assessed.

Results
Measurements were completed in 25 subjects (8 males) aged 46.1±14.5 years. Peak oxygen consumption (VO2peak) was 2978±983 mL/min in men and 1978±265 mL/min in women. Handgrip strength was 47.0±11.1 kgf in men and 32.4±6.3 kgf in women. Body mass index (BMI) was 24.2±2.6 kg/m2 in men and 27.4±6.1 kg/m2 in women.
VO2peak of the study sample was lower than that of healthy adults (−414±510 mL/min, $p<0.001$). Handgrip strength and BMI were similar to reference values.
VO2peak was correlated with PA ($r=0.58$, $p=0.004$); BMI was correlated with disability ($r=0.48$, $p=0.022$). Other correlations between HRPF and symptom severity and ULF were non-significant.

Discussion and conclusions
Patients with CANS have lower cardiorespiratory fitness, but similar handgrip strength and body composition, compared with healthy adults. Cardiorespiratory fitness was correlated with PA and BMI was correlated with disability.

Clinical message
Physicians and therapists should pay attention to HRPF (especially cardiorespiratory fitness and BMI) in patients with CANS. Consider interventions to improve PA.

P59

The effect of rocker shoe parameters on step length during walking

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Introduction
Toe-only rocker shoes have the potential to alleviate pressure in specific forefoot areas among patients with diabetes mellitus by modifying the apex position and apex angle. However, these adjustments may have undesirable side-effects on ankle push-off power, energy expenditure, and gait stability. Consequently, individuals may compensate by reducing their step length.

Objective
This study aimed to examine the influence of various rocker shoe settings on step length.

Participants
Ten healthy individuals with an average age of 22 (±2) years were recruited for this study.

Methods
Nine rocker shoe settings were tested with apex position (54%, 64% and 74%) and apex angle (60°, 90° and 120°). Participants walked on an instrumented treadmill at their constant, self-selected walking speed for 1.5 minutes with each shoe setting. Average step length was measured and normalized to body height. Main effects and interaction effects of apex position and angle on step length were determined.

Results
Results: A main effect of apex position on step length was observed ($p = 0.005$), although the observed change in step length did not exceed 1 cm. No effect of angle or interaction effect was found.

Discussion
When the apex was positioned more distally, individuals walk with larger steps. Nevertheless, this small alteration in step length is unlikely to significantly impact gait stability and energy expenditure during walking.

Clinical message
The effect of rocker shoe properties on step length is minimal and is not expected to have a great impact on gait stability and energy costs while walking.

P60

Technical evaluation of commercial IMUs within clinical gait analysis in adult with a neurological disorder

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Introduction
3D gait analysis provides detailed information about kinematics during walking, but is restricted to gait labs, time consuming in preparation and data analysis. Commercially available Inertial Measurement Units (IMUs) might cope with these disadvantages and are already used in healthy persons. Whether they are suitable for clinical gait analysis in patients is unknown.

Objective
To test the applicability of a commercial IMU system during 3D clinical gait analysis in patients.

Patients
Adults with a neurological disorder affecting gait.

Added value for patients
Quick and high-quality gait analysis.

Methods
Gait analysis included 3D motion-analysis using an 8-camera system with a plug-in gait-model (VICON) and eight commercial IMUs (Movella), attached to both legs, feet and trunk. Lower limb kinematics of both systems during overground walking were compared.

Results
First two out of twenty subjects showed that sagittal plane kinematics of both systems showed overall agreement. Coronal and transversal plane hip and pelvis kinematics showed significant deviations. In one subject IMU data showed an offset compared to VICON data. In addition, in some trials errors occurred in detection of foot events, therefore limiting the available gait data useful for data analysis.

Discussion and conclusions
First results of IMUs showed that sagittal plane kinematics are promising. Data showed issues with offsets related to difficulties in maintaining the required N-pose position during calibration. Improvement of the calibration routine and foot-event detection is needed.

Clinical message
Solving these issues, IMUs offer possibilities for quick and high-quality gait analysis.

P61

Efficacy of aerobic exercise on aerobic capacity in slowly progressive neuromuscular diseases: a systematic review and meta-analysis

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Introduction: Rehabilitation treatment in people with neuromuscular diseases (NMD) often involves aerobic exercise to improve their reduced aerobic capacity.

Objective: To summarize the evidence on the short- and long term efficacy of aerobic exercise for improving aerobic capacity in slowly progressive NMD.

Methods: MEDLINE, EMBASE, SPORTDiscus and Web of Science Conference Proceedings Index were systematically searched up to June 17, 2021. We selected randomized controlled trials that compared aerobic exercise to no aerobic exercise in adults with slowly progressive NMD, assessed by the peak oxygen uptake (VO2peak) and several secondary outcomes. Meta-analyses were performed when outcomes were reported in more than two studies. Risk of bias was assessed using Cochrane risk-of-bias and quality of evidence using GRADE.

Results: Nine studies were included, describing 195 participants with 8 different NMD. Eight studies were rated at high risk of bias. Exercise programs ranged between 6 and 26 weeks, with 3 weekly training sessions, prescribed as percentages of the (estimated) maximal capacity, for 20 to 40 minutes. Meta-analyses indicated short-term beneficial effects on VO2peak (standardized mean difference [SMD]: 0.55, 95% CI: 0.23-0.86) and peak workload (SMD: 0.61, 95% CI: 0.24-0.99). No adverse events were reported and long-term effects were not assessed.

Conclusion and added value for patients: There is low-quality evidence that aerobic exercise is safe and leads to moderate short-term improvement of aerobic capacity in slowly progressive NMD and therefore we advocate its use in clinical practice. However, the long-term efficacy remains unclear.

P62

Pain experiences, beliefs and the consequences of pain for functioning in people with Reumatoïd Arthritis and chronic secondary pain

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Introduction
Patients with rheumatoid arthritis (RA) are frequently affected by pain. A state of induced hypersensitivity of the pain system may persist and lead to chronic secondary pain, independent of inflammation1.

Object
Providing insight into the thoughts, beliefs and fears of patients with RA and their relationship with perceived limitations in functioning and participation.

Patients
Twelve participants with RA and chronic secondary pain confirmed by rheumatologist. Patients with active disease or bad understanding of Dutch language were excluded.

Added value for the patients
Providing insights for the development of an individual, tailored (multidisciplinary) treatment for chronic secondary pain in RA.

Methods
Two individual and three semi-structured focus group interviews were conducted. The interviews were audio-recorded and transcribed verbatim. Coding, using NVivo, was done by 2 researchers independently of each other.

Results
Divergent thoughts, beliefs and consequences for functioning are identified and could be merged into general themes: ‘Disease appraisal’, ‘Coping’, ‘Social and Work environment’, ‘Change in identity’ and ‘healthcare’.

Discussion and conclusions
Incomprehension due to limitations in different contexts and not feeling heard by healthcare providers was a frequent finding. Social and mental factors seem to play an important role in the thoughts and beliefs of patients with RA and secondary pain. Few fears were mentioned.

Clinical message
Not feeling heard by healthcare providers turned out to be an important theme besides mental and social factors. Good individually tailored pain education seems to be an important first step towards a decrease in pain-related disability and should be incorporated in treatment.

P63

Longitudinal course of long finger flexor shortening in males with Duchenne muscular dystrophy

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Introduction: Shortening of the long finger flexors (Flexor Digitorum Profundus, FDPs) in Duchenne Muscular Dystrophy (DMD) causes reduced hand function. Until now, longitudinal studies on the natural course of the shortening of the FDPs are lacking, which impedes recommendations on timing and evaluation of preventive measures.
Objective: To investigate the longitudinal course of the FDP length during different disease stages focusing on symmetry, timing, and decline of the FDP length.
Methods: a retrospective, longitudinal multicenter study was conducted in the Radboud university medical center and the Leiden university medical center. The FDP outcome was measured using goniometry and gross motor function was assessed using the Brooke score. Longitudinal mixed model analyses were used to describe the course of the FDP outcome, and to investigate symmetry in both hands.
Results: Data on 534 visits of 197 males (age ranged 4-48 years) showed that in the ambulatory stages the FDP outcome was within a normal range. The mean decline in FDP outcome is 3.5 degrees per year, the biggest decline was seen in Brooke 5 (>15 degrees per year). In Brooke 4, 41% of the FDP outcome was <40 degrees. No significant differences were found between right and left.
Discussion and conclusions: This study supports the consideration of preventive measures to delay shortening of the FDPs in DMD patients transitioning to a Brooke scale of 4 or higher. Besides, natural history of FDP outcome has been established, which provides a base to evaluate (preventive) interventions.

P64

Facilitators and barriers in living the desired adult life, despite having Duchenne muscular dystrophy (DMD)

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Introduction: with the increased life expectancy a new adult population with Duchenne Muscular Dystrophy (DMD) arises.
Objectives: (1) exploring the desired participation for adolescents and adults with DMD including making their own choices during adult life, (2) exploration of the view and role of parents in this process, and (3) capturing the gap between the current situation and the desired situation, with attention for the factors which are of influence on this gap.
Methods: A prospective, cross-sectional survey was conducted. Topics from the survey were based on literature study, an expert meeting, and 20 interviews with adolescents and adults with DMD and their parents. Descriptive and non-parametric statistics were used.
Results: The participants with DMD want to have an independent life. They scored leisure activities as important topic in living the desired adult life and they were satisfied with the current leisure activities. Gaps were identified between the desired situation and current situation concerning facilities and aids, social activities and employments. Important factors of influence on these topics were accessibility, outdoor mobility, adequate care facilities, self-confidence, adequate knowledge of professionals, and support of parents. Parents were pessimistic about assessing facilities and aids, job opportunities and their son having an intimate relationship.
Discussion and conclusionc: The challenges the participants faced were mainly in the social domain. Close collaboration between health care services, social services and business environment is necessary to empower people with DMD living their desired life.

P65

Motor Fatigability in the Upper and Lower Limbs of Children with Cerebral Palsy: A Systematic Review

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Objective: The objective of this systematic review is to synthesize the available literature concerning differences in static and dynamic motor fatigability observed between children with Cerebral Palsy (CP) and typically developing (TD) children.
Added value for patients: Children with CP often experience a constant, non-fluctuating fatigue, which is typically referred to as trait fatigue. However, it remains unclear if they exhibit motor fatigability, which is variable and fluctuating in time, characterized by a strength reduction during exercise. This review aims to improve our understanding of motor fatigability in children with CP and identify differences compared with TD children.
Search strategy: We searched PubMed, Web of Science, and Scopus until April 7th, 2023, using keywords "Cerebral Palsy," "Child," and "motor fatigability."
Selection of articles: Studies meeting the following criteria were eligible: including children aged 2-21 years with CP, evaluating motor fatigability of upper and lower limbs via voluntary muscle contraction, comparing CP and TD, being English-written case-control studies.
Results: Fourteen studies fulfilled the criteria. Results indicated no significant differences in dynamic motor fatigability of upper limbs between CP and TD children, but inconsistencies regarding upper limb static motor fatigability at ICF body function level were found. Moreover, increased dynamic motor fatigability in CP children's lower limbs was evident during ICF activity-level assessments.
Conclusion: Inconsistent evidence on static and dynamic motor fatigability in children with CP emphasizes a need for further research to establish reliable and valid protocols for measuring motor fatigability both at body function and activity level in this population.

P66

Obesity in people with long-standing spinal cord injury: prevalence and associations with time since injury and physical activity

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Introduction In people with spinal cord injury (SCI), obesity is associated, among others, with musculoskeletal overuse problems, severe pressure ulcers, unfavorable metabolic profile, and a higher mortality risk.
Objective To investigate the prevalence of obesity and its association with time since injury (TSI) and physical activity (PA) in wheelchair users with long-standing SCI.
Patients Wheelchair-dependent persons with SCI (N=279).
Methods Cross-sectional study. Participants were divided in TSI strata (10-19, 20-29 and ≥30 years) and in meeting SCI-specific exercise guidelines or not. Waist circumference (WC) and body mass index (BMI) were assessed. Participants were classified as being obese (WC>102 cm for men and >88 cm for women; BMI≥25 kg/m2) or not. Logistic regression analyses were performed to investigate the association between TSI and PA and being obese.
Results Almost half of the participants (45-47%) were classified as obese. TSI was significantly associated with being obese, the odds of being obese was 1.4 higher when having a 10 years longer TSI. Furthermore, the odds of being obese was 2.1 lower for participants who were meeting the exercise guidelines.
Discussion and conclusions The prevalence of having abdominal obesity is higher in people with long-standing SCI than in the general Dutch population.
Clinical message Those with a longer TSI and individuals who do not meet the exercise guidelines are more likely to be obese and need to be targeted for weight management interventions.
Added value for patients To determine who is at risk for obesity and needs to be targeted for weight management interventions.

P67

Factors and Motives in Choosing Non-pharmacological Treatments for Neuropathic Pain in People with Spinal Cord Injury: a Qualitative Study

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Introduction: Neuropathic pain (NP) in people with spinal cord injury (SCI) is a difficult symptom to treat. Pharmacological treatment is often ineffective and insufficient. Therefore, patients look for alternative ways to alleviate NP, often turning to non-pharmacological interventions (NPIs).
Objective: The aims of this study are to identify (1) the considerations of people with SCI in choosing to use NPIs for NP, (2) which factors influence their decision and (3) who is involved in this choice.
Methods: Ten patients with SCI and NP were interviewed. Interviews were transcribed verbatim, and data was analysed through thematic coding, following an inductive content analysis approach.
Results: A path towards finding NPIs emerged. Main themes were: pain, motives, strategy and choice. Patients started with pain and its impact on their life. Regular pharmacotherapy not working, led them to seek NPIs. Motives were that patients were willing to try everything and disappointment and frustration. The strategy they chose often involved third parties and the internet. Motives and strategy were influenced by a patient's personality and previous personal experience. The choice for a treatment was influenced by financial reasons, availability and convenience of the treatment.
Discussion and conclusion: The path patients with SCI and NP go through to find NPIs to manage their pain is difficult and often lonely.
Clinical message: Findings highlight the importance of information provision by Health care professionals (HCPs) surrounding NPIs in the treatment of NP.
Added value for patients: HCPs and patients working together can improve the treatment for NP.

P68

Myokines may target accelerated cognitive aging in people with spinal cord injury: A systematic and topical review

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Introduction: Research has discovered accelerated age-related cognitive decline in individuals with spinal cord injury (SCI) compared to the general population. Myokines, factors produced by skeletal muscle during exercise, are considered potential protective agents for cognitive aging in older adults.

Objective: This systematic and topical review aimed to examine the potential beneficial role of myokines on cognitive aging in people with SCI.

Methods: A systematic search of 4 electronic databases was conducted with the keywords myokines, cognitive function, and SCI. The search was supplemented with a topical review of the biological mechanisms underlying the relationship between myokines and cognitive function.

Results: The systematic search resulted in 387 articles, but none were eligible for full text screening, highlightingthe lack of evidence on this topic. Secondary hand search identified, some studies that confirm that myokines are released with exercise in individuals with SCI and one study reported cognitive improvements in this population after exercise.

Conclusion: From a mechanistical point of view, myokines may have therapeutic potential for targeting cognitive aging in people with SCI. This review paper highlights the need for further research in this area.

Added value for patients: Myokines represent a novel and potentially promising approach to improving cognitive function the general population and in the context of rehabilitation, but further research is needed to determine the optimal exercise interventions to increase myokine levels and to better understand their mechanisms of action.

Funding: Research Council of Lithuania (S-MIP-21–37).

P69

Compensatory mechanisms and fatiguability in patients with neuromuscular diseases

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Patients with a neuromuscular disease (NMD) often report fatigue during the day, which results in difficulties while executing daily tasks. To participate in everyday life, patients rely early in life on compensatory-mechanisms. Compensatory-mechanisms can be helpful but can also lead to overuse. The aim of this study was to determine which compensatory-mechanisms are used by patients with NMD to reach maximal effort and their relation with fatigue and to determine the timing of these compensatory-mechanisms.
Eight patients with NMD performed a maximal incremental ergospirometry cycle test using a 10-minute ramp protocol. We performed a breath-by-breath analysis of pulmonary gas exchange to detect ventilatory thresholds. A full body 3D movement analysis was used to measure kinematic variables and surface electromyography (sEMG) was applied to detect EMG thresholds in the amplitude signal of 16 muscles of the upper and lower leg and trunk. sEMG thresholds and changes in kinematic angles were visually detected.
Various compensatory-mechanisms used by patients with NMD during fatigue were detected. Compensatory-mechanisms occurred both at a movement level (kinematic changes) and on a muscular level (changes in sEMG). The most common compensatory-mechanisms were an increase in pelvic anterior tilt, hip adduction and knee extension.
The timing of the sEMG thresholds versus the timing of kinematic changes differed between patients. A difference in muscle weakness can possibly explain the difference in the compensatory-mechanisms used between patients.
The differences in compensatory-mechanisms stress the importance of individualized guidance and treatment in daily life and during exercise.

P70

Person Centred Care in Rehabilitation Medicine, Interprofessionalism in action!

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Session Description
Interprofessionalism (INPRO) is defined as the development of an innovative practice between professionals from various disciplines. It is the process by which professionals reflect on and develop ways of practicing that provides an integrated and cohesive answer to the needs of the person with a health question and his family. An Erasmus+ Programme funded a team of rehabilitation professionals and educators from Belgium, Austria, Finland and The Netherlands to improve the person centred practice of Rehabilitation Medicine. This team developed and evaluated promising approaches and materials on Interprofessional education and collaboration.

The INPRO team reviewed and discussed the existing interprofessional frameworks. As a result, the WHO rehabilitation competency framework (RCF) is chosen as the master framework. Other frameworks based on some eligibility criteria were integrated and renamed to the INPRO Competency Framework (INPRO CF). This framework was tested in various settings and institutions resulting in a stepwise interprofessional competence framework implementation that fits for education and clinical practice and stimulates life-long learning. As a result the INPRO CF will be published in four languages (Dutch, English, Finnish and German) guided by instructions for implementation.

The INPRO team considers the International Classification of Functioning, Disability and Health (ICF) as basic understanding for a person-centred approach in rehabilitation medicine. Therefore, a basic and advance course were developed and tested in both clinical practice and higher education.

The INPRO team also developed and tested person centred and interprofessional learning interventions that are described in a process guide on the development of interprofessional education programmes. Students (among others) learning in authentic environments, learn to collaborate and co-create knowledge with others. This requires students to learn to bridge the boundaries of their own practice. Participants in this session will explore the concept of ‘boundary crossing’ and its learning mechanisms and will reflect on applying this in their own interprofessional context.

Finally the INPRO team set up a Student-Run Interprofessional Learning Ward (SR-IPLW). This is a Community of Practice where patients, students, rehabilitation professionals and lecturers from higher education learn and work with and from each other in a clinical rehabilitation setting. Within the INPRO project a guideline was developed in which the working method of the SR-IPLW has been described and piloted in three rehabilitation centres in Finland, Austria and The Netherlands in both in-patient and out-patient settings with various patient groups.

In this session all above mentioned issues of interprofessional learning and collaboration will be discussed. We will present a framework for interprofessional competencies, show how ICF can be used for interprofessional collaboration, demonstrate an example of interprofessional learning intervention and exchange experiences of a student-run interprofessional learning ward in a clinical rehabilitation setting.

Innovation Posters

I1 - P07. Update on the development and use of a Mixed Reality spinal cord injury patient education: detailed modules about neurogenic bladder and bowel dysfunction and management - *Joost Baardman*

I2 - P10. ADJUST: A stiffness adjustable ankle-foot-orthosis for rapid human-in-the-loop orthosis selection - *Rein Miedema*

I3. GameChangers: rehabilitation professionals specialized in inclusive gaming - *Bonita Janse*

I4. Madglove: Creating an accessible home-rehabilitation glove to increase independence for people with spasticity - *Cara Knott*

I5. Implementing eHealth as blended rehabilitation care using action research: perspectives of patients, parents and healthcare professionals on the use of eHealth in rehabilitation care - *Carine Gotink*

I6. Health literacy: a practice-driven exploration to bridge the gap - *Chantal Bakker*

I7. A novel assistive listening device for acquired central auditory processing disorder (CAPD) in a normal hearing adult with hyperacusis - *Frank De Vries*

I8. Management of cocktail party deafness (CPD) in a normal hearing adult with hyperacusis and acquired central auditory processing disorder (CAPD) - *Frank De Vries*

I9. Challenges in implementing fixed treatment plan definitions (FTPDs). Clinicians' opinions on working with FTPDs - *Hein Swinkels*

I10. Development of a knowledge agenda for orthopaedic footwear - *Jaap Van Netten*

I11. A description of the underlying principles of the 'Rehabilitation is all about learning'-approach; a theoretical framework - *Rick Van De Ven*

I12. The effect of working according to the 'Rehabilitation is all about learning'-approach on the rehabilitation trajectory; a first insight - *Rick Van De Ven*

I13. Collaboration between primary and secondary care in the treatment of children with Developmental Coordination Disorder - *Sarah Flap*

I03

GameChangers: rehabilitation professionals specialized in inclusive gaming

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Topic

In the field of rehabilitation patients (treatment) and health professionals (knowledge and guidelines) need support regarding gaming.

Relevance

Gaming brings people together, despite physical and/or geographical barriers and is a meaningful activity for many people. Individuals with disabilities face additional challenges and barriers in gaming e.g. using regular game controllers or executing required motor tasks thereby limiting participation.

Current status

A first inventory showed that patients at Basalt rehabilitation rarely expressed need for inclusive gaming, mainly due to lack of knowledge and active inquiry among professionals. But also due to limited awareness of inclusive gaming within rehabilitation context.

Plan of action

A more thorough inventory revealed a need of knowledge in the rehabilitation teams and guidelines for treating problems regarding gaming during standard care (75% of therapists requested expert guidance on inclusive gaming). A team of 12 ‘GameChangers’ comprising occupational- and physiotherapists from five children’s teams in Basalt was set-up and trained to comply this need. Training was based on best practices from both Basalt and Klimmendaal.

The GameChangers identify gaming-related care needs based on an analysis of the child's abilities at participation and activity level and create a treatment plan according to the created inclusive gaming care module.

So far, ‘GameChangers’ have supported 19 patients and overall satisfaction is high. The next step is to develop guidelines for treatment and expand knowledge regarding inclusive gaming within the teams. Furthermore, the project intends to widen its scope towards the adult unit and foster stronger national collaborations in the field.

I04

Madglove: Creating an accessible home-rehabilitation glove to increase independence for people with spasticity.

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Madglove is developing an innovative and accessible home-based rehabilitation glove with the aim of mitigating the effects of hand spasticity. A common symptom of neurological disorders (stroke, cerebral palsy (CP), multiple sclerosis, brain injury, spinal cord injury) is upper extremity spasticity, causing muscles to be involuntarily contracted. Due to this, simple tasks such as zipping up a jacket become difficult, or even impossible to do. This drastically lowers a person's confidence, participation in society and quality-of-life. We are creating a no-tech, independently usable glove that stabilizes the wrist and dynamically extends the fingers into a position functional for daily activities, increasing a person's independence. The proof-of-concept was conducted with 20 stroke survivors in Romania, and we are currently optimizing our solution with end-users and experts. Due to the no-tech approach, the cost of goods can remain low making the glove easily accessible to anyone who needs it. Moving forward, we have approval for a collaborative study on post-stroke-spasticity with Vrije Universiteit Amsterdam, we are meeting with CP experts and will give sample gloves to our comprehensive network of rehabilitation clinics in the Amsterdam area. With this feedback, we will manufacture the first gloves in the beginning of 2024. Due to our contacts and health insurance coverage, the Netherlands is an excellent market entry point. However, as the number of people worldwide living with spasticity is constantly increasing, our mission is to scale this solution to people around the world, and help them get a grasp on their spasticity.

I05

Implementing eHealth as blended rehabilitation care using action research: perspectives of patients, parents and healthcare professionals on the use of eHealth in rehabilitation care

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Topic: Using action research to implement eHealth innovations as blended rehabilitation care.

Relevance: The healthcare system is increasingly facing several challenges, such as ageing and labour shortages. eHealth implemented as blended care, could alleviate the burden on healthcare, including rehabilitation. Benefits for patients could be e.g., more ownership in when and where to work on their recovery. However, successful and sustainable embedding within the organization and uptake by its users requires, amongst others, generating support. Action research (AR) is a cyclical method with phases of planning, acting and reflecting where stakeholders collaborate throughout such a project. In this presentation, we present the first steps of implementing eHealth as blended care using AR.

Current status: The eHealth applications are an online portal (e-revalidatie), video-calling (WeSeeDo) and virtual reality (Reducept). Three project teams, consisting of healthcare professionals and researchers, are collaboratively deciding on the implementation within four diagnoses: cerebral palsy, developmental coordination disorder, chronic pain and acquired brain injury. Semi-structured interviews were conducted with 18 healthcare professionals and 24 patients/representatives to assess the barriers and facilitators at baseline. Preliminary results show that eHealth facilitates the continuation of at-home rehabilitation, decreases (travel) burden and simplifies communication. Barriers were lack of devices, limited time and missing non-verbal interaction.

Plan of action: These results provided input for planning the first implementation strategies. For example, current limited video-calling initiated a plan to replace cancelled physical consults with online consults. In the upcoming phase these plans will be put into practice. After evaluation, a new cycle starts.

I06

Health literacy: a practice-driven exploration to bridge the gap

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Relevance: Quality and efficiency of care benefit from multidisciplinary consultations in numerous ways. In the Máxima Medical Center, patients presenting with diabetic foot ulcers visit a specialized outpatient clinic of at least six different medical disciplines. In a single session, the complete team analyses the problem, and treatment can be started immediately. However, the worrisome patient may be intimidated by this group of white coats. A sense of overwhelm burdens information uptake, negatively impacts patient adherence and thus treatment results, especially for people with low health literacy.
Topic: The hospital communications department and the team cooperated to explore modalities that help all patients understand their diabetic foot care process.
Current status: A visually supported information leaflet was designed and consecutively adjusted in four in-depth feedback phases. The first and second phases consisted of evaluation by internal and external specialists in communication design for people with low health literacy. The third feedback round was performed by a group of volunteers as experts-by-experience. The final phase consisted of the judgment by the team members about the accuracy of the resulting information.
Plan of action: Apart from inducing changes to the content and design of the material, the specific focus for each round of feedback also provided important lessons for future leaflets. For example: chunking or omitting complex words is not always necessary. Also, presenting information according to the visual path of attention adds clarity. The most important recurring lesson though, is that involving the targeted population when designing communication material is indispensable.

I07

A novel assistive listening device for acquired central auditory processing disorder (CAPD) in a normal hearing adult with hyperacusis.

De Vries F[1]
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Acquired central auditory processing disorder (CAPD) is a deficit in processing of auditory information, despite normal pure-tone hearing thresholds. Symptoms include hyperacusis and cocktail party deafness (CPD), i.e. having difficulties with focusing on a single conversation in a noisy, multi-talker environment. Among adult stroke survivors, 60% had CAPD on close examination. CAPD in children may be managed with personal binaural ear level FM receivers e.g. in classrooms. However, management of CAPD and CPD in adults with normal hearing is poorly researched, often undiagnosed and the impact on social isolation or working conditions can be substantial.

Current status: we created an assistive listening device (ALD) for a 45-year old patient with a history of a right-hemispheric meningioma and craniotomy. He had normal hearing but probable CAPD (hyperacusis with loudness discomfort levels of 80 dB in both ears and CPD in noisy multi-talker environments such as restaurants). The successful ALD consisted of custom-made earmolds (yielding 15 dB passive noise cancelling) to overcome hyperacusis, a remote microphone (Phonak Roger-on), a receiver (Phonak Neckloop) and a bone conducting headphone (Shokz Titanium). The ALD allowed the patient to have a one to one conversation in noisy multi-talker environments such as restaurants and pubs, yielding a substantial improvement of quality of life.

Future: for group conversations with 2-6 people, a prototype ALD with Bayesian statistical models has been developed (Audiotelligence UK). It separates various sources of sound and processes multi-talker audio signals directly to a Bluetooth device. This is a promising alternative to remote microphone technology.

I08

Management of cocktail party deafness (CPD) in a normal hearing adult with hyperacusis and acquired central auditory processing disorder (CAPD).

De Vries F[1]
[1]Maastricht University

Topic: Acquired central auditory processing disorder (CAPD) is a deficit in processing of auditory information. It is often accompanied with normal peripheral hearing. Symptoms may include hyperacusis and having difficulties focusing on a single conversation in a noisy, multi-talker environment (cocktail party deafness [CPD]).

Relevance: In a UK neurosurgery clinic, 60% of adult stroke survivors had CAPD on close examination. While children are often managed with personal binaural ear level FM receivers in classrooms, CAPD and CPD in adults is often undiagnosed, poorly researched, and may result in social isolation.

Current status: We created a novel assistive listening device (ALD) for a 45-year old patient with a history of a right-hemispheric meningioma and craniotomy. He had normal hearing and probable CAPD (hyperacusis with binaural loudness discomfort levels of 80 dB and CPD in noisy multi-talker environments such as restaurants). The successful ALD consisted of custom-made earmolds (yielding 15 dB passive noise cancelling) to overcome hyperacusis, a remote microphone (Phonak Roger-on), a receiver (Phonak Neckloop) and a wired bone conducting headphone (Shokz/Aliexpress.com). The ALD allowed the patient to have a single one-to-one conversation in noisy, crowded multi-talker environments such as restaurants. He reported substantial improvement of social isolation and quality of life.

Plan of action:
For group conversations with 2-6 people, a prototype ALD with Bayesian statistical models has been developed (Audiotelligence UK). It separates various sources of sound and processes multi-talker audio signals directly to a Bluetooth device. This is a promising alternative to current remote microphone technology.

I09

Challenges in implementing fixed treatment plan definitions (FTPDs). Clinicians' opinions on working with FTPDs.

Swinkels H[1]
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Topic: Change management: challenges in implementing fixed treatment plan definitions (FTPDs). Clinicians' opinions on working with FTPDs.

Relevance: Many rehab centres face financial pressures[1]and various approaches have been tried to increase efficiency. A convenient planning system contributes to increased efficiency.[2] FTPDs are designed to play an essential role in optimizing planning. We investigate the opinions of clinicians in a centre that starts working with FTPDs (Klimmendaal) and relate the outcomes to the experiences of clinicians with more experience in working with FTPDs (St. Maartenskliniek). These insights help us in how to effectively implement this change. Our results will be relevant to all rehab centres, managers, and clinicians, facing implementation of FTPDs.

Current status: This qualitative study used semi structured interviews with open ended questions to interview 14 clinicians at Klimmendaal and 3 at St Maartenskliniek. Common themes that emerged were: Positive assumptions, like the predictability of the contents and length of the rehab program (for both patients and organisation) and on the other hand the administrative burden, the feeling of inflexibility and the risk of losing tailored made programs aimed at the specific patients' request.

Plan of action: This study shows which obstacles clinicians expect in working with FTPDs. The next step is to tackle solvable issues (like the administrative burden), to create mutual expectations (in which we can learn from experiences from another organisation) and to further improve the communication between management and employees to create a broad base of support[3] for proceeding with the implementation of FTPDs.

l10

Development of a knowledge agenda for orthopaedic footwear

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Topic: Orthopaedic footwear
Relevance: The field of orthopaedic footwear is developing from a field where individual knowledge, expertise and skills determine the outcomes, to an evidence-based and data-driven field with protocols and systems in place to achieve the best outcomes. However, scientific evidence concerning orthopaedic footwear is still limited. All stakeholders, from patients to rehabilitation physicians, will profit from better evidence in this field. A widely supported knowledge agenda is therefore an important first step.
Current status: We formed a multidisciplinary team of 10 members. We followed the ZonMW and Kennisfederatie Medisch Specialisten roadmaps for knowledge agendas. This consisted of: 1) inventarisation of relevant questions; 2) analyses of responses; 3) analyses of existing knowledge and evidence; 4) formulating research questions; 5) prioritizing research questions; 6) finalizing the Knowledge Agenda; 7) implementing the Knowledge Agenda.
In phase 1, 109 participants completed the survey, including 6% rehabilitation physicians and 3% patients. Participants provided 228 potential research questions. These were condensed to 65 research questions in phases 2-4. In phase 5, 152 participants prioritized the research questions, including 13% rehabilitation physicians and 9% patients. In the final Knowledge Agenda, 26 research questions were included, categorized based on the 'Procesbeschrijving Hulpmiddelenzorg'.
Plan of action: Various multidisciplinary project groups have now been formed to implement the Knowledge Agenda, writing project plans for funding applications. During DCRM, we will update the audience on these project plans, including room to set up potential new collaborations.

I11

A description of the underlying principles of the 'Rehabilitation is all about learning'-approach; a theoretical framework.

Van De Ven R[1], Dekkers L[2], van Kuijk A[1]
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Topic: To optimize the transition from the save environment of the rehabilitation centre to the home environment and to re-establishing the patients' social position and role, Tolbrug Rehabilitation implemented the 'Rehabilitation is all about Learning (RiL)'-approach. The theoretical framework and ground of this approach is still a black box. The aim of this study is to describe this theoretical framework.

Methods: The underlying principles of the 'RiL-approach were gathered using semi-structured interviews with the founders of the approach. Themes emerged after respectively open, axial and selective coding.

Results: The RiL-approach focuses on being able to use long-term solution strategies to improve the level of participation, rather than activities and skills in the short term. The RiL-approach seems grounded in the Self-Determination Theory of Ryan and Deci. It considers the rehabilitation process as a learning process and specific learning strategies are implemented within the trainings process. It considers rehabilitation as a personal quest and the primary responsibility of the individual. This turns healthcare professionals into learning professionals who act as equals to patients and ask questions instead of providing answers.

Conclusion: By applying learning principles, the RiL-approach focuses on long-term strategies to improve the level of participation. It has a risk of professional identity loss for healthcare professionals whose professional identity is primarily based on expert status and believe that their expertise is leading. The explicit outcome measure of the RiL-approach must be further investigated, both on patients' participation and rehabilitation trajectory data.

I12

The effect of working according to the 'Rehabilitation is all about learning'-approach on the rehabilitation trajectory; a first insight.

Van De Ven R[1], Dekkers L[2], van Kuijk A[1]
[1]Jeroen Bosch Hospital / Tolbrug Rehabilitation, [2]HAN University of Applied Sciences
Topic: To optimize the transition from the save environment of the rehabilitation centre to the home environment and to re-establishing the patients' social position and role, Tolbrug Rehabilitation implemented the 'Rehabilitation is all about Learning (RiL)'-approach. The aim of this study is to provide a first insight in the effect of the RiL-approach on the rehabilitation process.

Methods: Data that are structurally recorded in the electronic patient file are compared in this retrospective data study between a group of patients admitted for clinical rehabilitation before (2018-2020) and after (2020-2022) implementation of the RiL-approach

Results: There are no significant differences in rehabilitation trajectory data between the group of patients before the implementation of the RiL-approach and afterward with regard to diagnosis, age, gender, length of stay, direct treatment time, indirect treatment time, discharge destination and progress in self-sufficiency (mobility, self-care and cognition). There is a significant increase in time (percentage of the contract hours) that healthcare professionals spend directly on the patient after implementation of the RiL-approach

Conclusion: At first sight, healthcare professionals spend more of their time directly with the patient. On the other hand, there seems to be no difference in rehabilitation data from patients who rehabilitate before and after implementation of the RiL-approach upon discharge from the rehabilitation center. However, the RiL-approach pretends to improve the level of participation on the long term, so it is therefore recommended to investigate the effect on participation in the long term.

I13

Collaboration between primary and secondary care in the treatment of children with Developmental Coordination Disorder

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Topic:
The tradition of healthcare organisations to work separately hampers collaboration and causing long waiting lists and inadequate support for parents and children with Developmental Coordination Disorder (DCD). Optimising collaboration is warranted. The Dutch DCD guideline recommends a shift to chain care, with regional collaboration between primary and secondary care.

Relevance:
Results from this innovation benefit professionals who are dedicated to enhancing collaboration between primary and secondary care for a specific target group. Chain care ensures timely and appropriate support for children with DCD and their parents.

Current status:
A learning network of parents of children with DCD, primary and secondary care professionals has been established. Participatory Action Research and the timeline method was used. Participatory process guided the development of the learning network, delivers key insights into the collaboration process and provides guidance on how the learning network will move forward.

Successful collaboration include the development of mutual vision, goals, understanding and trust through open communication and co-creation. Overcoming the “us vs. them” mentality, establishing shared language and building trust between each other are important ingredients for chain care. Furthermore, the treatment plan has been revised, reducing the length of therapy in secondary care from 18 weeks to a combined 10 weeks in secondary and 8 weeks in primary care. The primary care provider becomes a member of the interdisciplinary team.

Plan of action:
To ensure sustainability of chain care, organization structure must also be adapted, moving from a standard approach to one that allows for customizable care pathways.