ABSTRACTBOOK DCRM 2024

In dit abstractbook staan de volgende abstracts:

- Keynote sprekers
- Free paper sessies
- Workshops & mini-symposia
- Debat & PhD Award
- Posters & innovation Posters

Programma

Dit jaar is de voertaal van het DCRM Nederlands. Het plenaire programma, debat, workshops en mini-symposia zullen in het Nederlands zijn. Wetenschappelijke posters en free paper sessies blijven in het Engels.

Donderdag 7 november

Tijd	Sessie
09.00 – 10.00	Registratie deelnemers
10.00 – 10.15	Opening congres: **Nicole Voet PhD MD**
10.15 – 11.00	**Keynote prof. dr. Marcel Levi**
11.00 – 11.45	**Keynote prof. dr. Jim van Os**
11.45 – 12.00	**Pitch presentaties van de top 10 Beste Posters**
12.00 – 13.10	**Lunchpauze** inclusief bezoek aan **posters** **en sponsoren**
12.15 – 12.45	**Lunchsessie sponsor**
13.10 – 15.40	**Parallel sessie A & B; extra lange workshops (2,5 uur)**
13.10 – 14.10	**Parallel sessie A: freepapers**
14.15 – 15.45	**Parallel sessie B: workshops en mini-symposia**
15.45 – 16.25	**Middagpauze** inclusief bezoek aan **posters** **en sponsoren**
16.25 – 17.55	***Algemene Ledenvergadering VRA***
18.00 – 19.30	Vrije tijd
17.55 – 18.45	*Aiosborrel*
19.30 – 00.00	***Diner en feest***

Vrijdag 8 november

Tijd	Sessie
08.30 – 09.00	Registratie deelnemers
09.00 – 10.30	**Parallel sessie C: workshops en mini-symposia**
10.30 – 11.10	**Koffiepauze** inclusief bezoek aan **posters** en **sponsoren**
11.10 – 11.40	**Keynote prof. dr. Rienk Dekker**
11.45 – 12.45	**Parallel sessie D: debat en PhD thesis sessie** D1. PhD thesis sessie: presentaties van de beste Nederlandse PhD proefschriften D2. Debat
12.45 – 13.55	**Lunchpauze** inclusief **posters, netwerken en sponsoren**
13.00 – 13.30	**Lunchsessie sponsor**
13.55 – 15.25	**Parallel sessie E: workshops en mini-symposia**
15.25 – 16.05	**Middagpauze** inclusief bezoek aan **posters** **en sponsoren**
16.05 – 16.15	**Prijsuitreiking: beste PhD thesis, beste presentatie en beste poster**
16.15 – 16.45	**Keynote prof. dr. Baziel van Engelen**
16.45 – 16.55	Afsluiting van DCRM 2024

Keynotes

- Prof. Dr. Marcel Levi
- Prof. Dr. Jim van Os
- Prof. Dr. Rienk Dekker
- Prof. Dr. Baziel van Engelen

Prof. dr. Marcel Levi

Blik op een flexibele toekomst

Nog meer dan bij veel andere publieke en commerciële diensten staat de gezondheidszorg in het brandpunt van de belangstelling. Veel aandacht gaat uit naar de problemen: te weinig personeel, te weinig geld, te hoge werkdruk, wisselende klanttevredenheid en capaciteitsproblemen leidend tot lange wachtlijsten. Maar paradoxaal beleeft de gezondheidszorg tegenwoordig de grootste successen aller tijden waarbij we talloze ernstige aandoeningen met een grote impact op het leven van onze patiënten nu succesvol kunnen behandelen. In feite zijn veel van de grote problemen vooral het gevolg van het succes van de gezondheidszorg. De vraag is natuurlijk hoe we de huidige vraagstukken het beste kunnen aanpakken. En wellicht zullen we ook als professionals moeten veranderen: bijvoorbeeld om met een meer generalistische inslag de multimorbiditeit van steeds ouder wordende patiënten te adresseren. Of door op een andere manier te gaan samenwerken. Recente ervaringen hebben geleerd dat er maar één groep is die in staat is complexe problematiek binnen professionele organisaties op te lossen, en dat is die van de professionals zelf. Alleen zij hebben het overzicht en het inhoudelijke vermogen de noodzakelijke transformaties tot een goed einde te brengen. Dat brengt ons wel op het punt van leiderschap: van wie wordt dat eigenlijk verwacht en op welke manier?

Marcel Levi is voorzitter van de Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO), hoogleraar Geneeskunde bij Amsterdam UMC/Universiteit van Amsterdam en Professor of Medicine bij University College London. Voorheen was hij Chief Executive bij University College London Hospitals en voorzitter RvB van het AMC in Amsterdam. Hij is tevens actief praktiserend internist. Hij bekleedt verschillende bestuurlijke functies in nationale en internationale organisaties op het gebied van research en gezondheidszorg. Hij heeft ruim 800 wetenschappelijke artikelen gepubliceerd en is lid van de Koninklijke Academie van Wetenschappen en Honorary Fellow van de Royal College of Physicians in de UK. Hij is editor van verschillende wetenschappelijke tijdschriften en auteur van populair-wetenschappelijke/educatieve boeken en columns.

Prof. dr. Jim van Os

Is de ggz zich aan het heruitvinden als mentale revalidatiegeneeskunde?

De geestelijke gezondheidszorg (GGZ) staat op een kruispunt. Met groeiende wachtlijsten en een verslechterende mentale gezondheid vraagt de huidige crisis om een radicale heroverweging van onze benaderingen. Tijdens deze lezing zal Jim van Os de vraag verkennen of de GGZ zich kan heruitvinden als een vorm van mentale revalidatiegeneeskunde. Dit houdt in dat we verder kijken dan traditionele medische modellen en ons richten op een ecologische benadering van mentaal welzijn.
Jim zal historische misstappen in de GGZ belichten, waaronder de falende marktwerking, de poging om landelijke kwantitatieve symptoomreductieregistraties in te voeren en recente pogingen in IZA om wachtlijsten aan te pakken door (duur) ggz-personeel te trainen in een 'normaal gesprek'. Hij benadrukt de noodzaak voor een paradigmaverschuiving van een puur medisch model naar een epistemisch pluralistische aanpak. Hierbij wordt erkend dat psychisch lijden complex is en dat herstel meerdere geldige paden kan bevatten die tegelijkertijd worden bewandeld.
Centraal in zijn presentatie staat het concept van een GGZ-ecosysteem. Dit ecosysteem integreert traditionele behandelmethodes met zelfregiecentra, herstelacademies, digitale platforms, welzijn op recept en lichaamsgerichte benaderingen. Het belang van een gelijkwaardige en waardengedreven samenwerking binnen dit ecosysteem en de verschuiving van de rol van GGZ-professionals van behandelaars naar facilitatoren van herstel zal aan de orde komen.
Deze ontwikkelingen maken duidelijk dat de GGZ en revalidatiegeneeskunde naar elkaar toe groeien, omdat beide disciplines zich steeds meer richten op een holistische en functionele benadering van herstel, waarbij de nadruk ligt op het verbeteren van de kwaliteit van leven en het versterken van persoonlijke capaciteiten in plaats van symptoombeheersing per se.

Jim van Os, geboren in Utrecht in 1960, is hoogleraar Psychiatrie en tevens voorzitter van de Divisie Hersenen aan het UMC Utrecht. Hij is lid van de Koninklijke Nederlandse Akademie van Wetenschappen als de Koninklijke Hollandsche Maatschappij der Wetenschappen. Zijn werk richt zich op de kritische evaluatie van het heersende model van psychisch lijden, dat vaak simplistisch wordt voorgesteld als 'ziek in je hoofd'. Hij betoogt dat deze benadering weinig positieve impact heeft gehad op de kwaliteit van de geestelijke gezondheidszorg (ggz) in de westerse wereld en mogelijk zelfs heeft bijgedragen aan de opvallende toename van psychische aandoeningen onder jongeren.
Van Os ziet de academische psychiatrie en psychologie als 'pre-wetenschappen', die dringend behoefte hebben aan meer gelaagde en complexe modellen van

psychisch lijden, die rekening houden met de sociaal-collectivistische oorzaken ervan. Hij werpt de cruciale vraag op hoe de ggz georganiseerd moet worden in een samenleving waar de jaarprevalentie van psychisch lijden 25% bedraagt, een vraag die tot op heden onderbelicht is gebleven in het onderzoek.
Jim van Os pleit voor een nieuwe benadering van de ggz, waarbij deze meer gezien wordt als een vorm van mentale revalidatie. Hij stelt voor te leren van het holistische model van de revalidatiegeneeskunde, dat niet alleen de symptomen, maar ook de bredere menselijke ervaring en het functioneren in de samenleving adresseert.

Prof. dr. Rienk Dekker

Revalidatiegeneeskunde leefstijlvol? Concrete mogelijkheden.

Het congres gaat over maatschappelijke veranderingen. Een van die veranderingen betreft de toegenomen aandacht voor gezonde, actieve leefstijl. Een aansprekende uiting hiervan is het Integraal Zorg Akkoord, waarin de overheid aangeeft dat vanaf 1 januari 2025 leefstijl een vast onderdeel moet zijn van de reguliere zorg. Deze toegenomen aandacht komt voort uit onweerlegbaar bewijs dat een gezonde leefstijl effectief is. Maar ook in de zoektocht naar het vinden van een oplossing voor het dreigende personeelstekort in de zorg kan een gezonde leefstijl een rol spelen.
Deze aandacht uit zich onder andere in het uit de grond schieten van heel veel zorginitiatieven, zowel lokaal als landelijk. Ook in de Medisch Specialistische Revalidatie (MSR) krijgt leefstijl steeds meer aandacht. Focus ligt daarbij bijvoorbeeld op het fitter krijgen van onze patiënten en op het stimuleren van gezond gedrag bij onze patiënten. Hoewel er vanuit een aantal revalidatie-instellingen en samenwerkingsverbanden al gewerkt wordt aan het ontwikkelen van fitheids- en leefstijlprogramma's, ontbreekt het nog vaak aan concrete richtlijnen en aanwijzingen om met leefstijl aan de slag te gaan in de praktijk. Tijdens de presentatie wordt toegelicht hoe de fitheid van patiënten kan worden getest en bevorderd, afhankelijk van de MSR-setting, van de diagnose en van de financiële mogelijkheden. Daarnaast zal ook aan de hand van een praktische handleiding worden toegelicht hoe leefstijlgedrag van onze patiënten, in de zorgketen, vanuit het ziekenhuis en vanuit het revalidatiecentrum, kan worden bevorderd. Aan het slot van de presentatie zal een aantal praktische handvaten worden gegeven, waarmee in de praktijk (verder) aan de slag kan worden gegaan.

Rienk Dekker werkt als revalidatiearts en hoogleraar Revalidatiegeneeskunde en Actieve Leefstijl in het UMCG in Groningen. Daarnaast heeft hij een aanstelling als gasthoogleraar bij Basalt Revalidatie, Den Haag. In zijn functie als revalidatiearts past hij zoveel mogelijk gezonde actieve gezonde leefstijl toe als medicijn in de patiëntenzorg. Als onderzoeker werkt hij aan het ontwikkelen van

nieuwe test- en behandelprogramma's met fysieke fitheid en actieve leefstijl als aangrijpingspunten, onder het motto: een fittere patiënt revalideert sneller en beter en houdt dat effect langer vast. Daarbij probeert hij samen met collega's nieuwe manieren te vinden om mensen met een lichamelijke beperking nog meer te motiveren om een gezonde actieve leefstijl aan te nemen en aan te houden. Tegen die achtergrond publiceerde hij meer dan 130 wetenschappelijke artikelen, verwierf diverse (ZonMw) onderzoeksubsidies, begeleidt hij promovendi en maakt hij onderdeel uit van een aantal onderzoekconsortia, zoals het LOFIT en het consortium Kennisagenda Leefstijlinterventies Revalidatiegeneeskunde. Ook is hij nauw betrokken bij een aantal gerelateerde landelijke initiatieven, zoals de AIRe (vereniging Aandachtsgebied Inspanningsfysiologie in de Revalidatiegeneeskunde), de WVBS (geaccrediteerde Werkgroep VRA Bewegen en Sport), Team NL van het NOC&NSF en het National Center Exercise is Medicine. Via gerichte onderwijs- en opleidingsinitiatieven zet hij daarnaast in op het nog meer betrekken van studenten en vakgenoten bij het toepassen van actieve gezonde leefstijl als medicijn.

Prof. dr. Baziel van Engelen

Een bijsluiter van de geneeskunde, een rol voor de revalidatiegeneeskunde?

De praktijk van gezondheidszorg is complex en ambigue.
Enerzijds spelen in die zorg wetenschappelijke inzichten en technologie een cruciale rol: doorgronden wat er met een patiënt aan de hand is, wat eraan vooraf is gegaan, een inschatting kunnen maken hoe het verder gaat, kunnen beoordelen of er iets gedaan kan worden en zo ja, dit kundig uit kunnen voeren (biomedisch perspectief, ziekte als *disease*).
Anderzijds is er de existentiële dimensie van de ziektebeleving (ziekte als *illness*). Ziekte kan betekenen dat iemand niet in staat is om zijn of haar leven te blijven leiden zoals hij of zij dat gewend was en dat bij voorkeur zou willen blijven doen. Het kan lijden, pijn, verdriet, ongemak, angst of onzekerheid met zich meebrengen. De ziekte, vooral de chronische ziekte, herinnert aan de kwetsbaarheid en de eindigheid van het menselijk leven.

"Tyranny of het idea of cure"
Hoewel de existentiële dimensie door niemand zal worden ontkend, lijkt een algemene tendens in onze maatschappij te zijn dat de wetenschappelijke en technologische dimensie van zorgverlening in de afgelopen decennia steeds prominenter is geworden, en dat dat ten koste is gegaan van aandacht voor de existentiële dimensie. Dit eenzijdig (*disease*) perspectief heeft dus een prijs: De "*Tyranny of het idea of cure*", de exclusieve aandacht voor de *cure*, het streven naar de 'totale genezing', het streven naar een leven zonder ziekte, kan het omgaan met lijden en ziekte (vooral chronische ziekte) bemoeilijken. De exclusieve aandacht verlamt andere mogelijkheden van behandelen.

Lijden aan de geneeskunde door exclusief disease perspectief
Er is lijden in de geneeskunde, maar ook een lijden *aan* de geneeskunde: we leven in een maatschappij waarin de geneeskundige beelden en voorspellingen over chronische ziekten (sickness perspectief) de patiënt niet helpen om een goed leven te hebben mét de ziekte. Vandaar dat ik pleit voor een Bijsluiter van de geneeskunde©. De bijsluiter zou onder het kopje 'Bijwerkingen' het volgende kunnen bevatten: "Een exclusief disease-perspectief op uw ziekte komt met een prijs: Het kan u *hinderen in een heilzame omgang met uw chronische ziekte, het*

kan een goed leven met de chronische ziekte in de weg zitten. Vraag uw arts om u en uw gezin te helpen om een optimaal leven te hebben." Soms moeten we de ziekte als *disease* tussen haakjes zetten, en de patiënt helpen weer deel te nemen aan het leven. Hippocrates zei het al zo mooi: "Het is belangrijker welke mens de ziekte heeft, dan welke ziekte de mens heeft".

Revalidatiegeneeskunde als voorloper
De revalidatiegeneeskunde kan een sleutelrol spelen, want het is een scharniervak waar *disease, illness en sickness* samenkomen. Het ICF model komt hier niet voor niets vandaan. De revalidatiegeneeskunde lijkt bij uitstek geschikt om een bijdrage te leveren aan de bijsluiter van de geneeskunde. De revalidatiegeneeskunde als voorloper in geneeskunde, hopelijk houdt het zelfbewustzijn en de eigenwaarde van de revalidatiegeneeskunde hiermee gelijke tred.

Baziel van Engelen, geboren te Eindhoven in 1957, is neuroloog en filosoof. Sinds mei van dit jaar is hij emeritus *hoogleraar neuromusculaire ziekten in het Radboudumc en de Radboud Universiteit. Daarvoor was hij hoofd van het Spierziekten Centrum Radboudumc bestaand uit verpleegkundigen, artsen, paramedici en onderzoekers van de afdelingen Neurologie, Revalidatie en Kindergeneeskunde. Zijn focus ligt op* bedside-to-bench *translationeel onderzoek van neuromusculaire ziekten in het bijzonder myotone dystrofie (Steinert Award, MD Foundation USA) en Facioscapulohumerale dystrofie (Engel Award, Patiëntenorganisatie Spierziekten Nederland). Hij bekleedde verschillende bestuurlijke functies in nationale en internationale organisaties (o.a. wetenschappelijk directeur European Neuromuscular Centre) op het gebied van onderzoek en zorg. Hij heeft ruim 700 wetenschappelijke artikelen gepubliceerd, heeft nog een 25-tal lopende promotietrajecten, is lid van de Academia Europaea en sinds 2018 Ridder in de Orde van de Nederlandse Leeuw.*

Parallel Session A: Freepapers

Freepaper session A3: Top 4 orals
Freepaper session A4: Innovation
Freepaper session A5: Brain injury
Freepaper session A6: Neuromuscular diseases /Covid
Freepaper session A7: Bewegen/Fitness/Voeding
Freepaper session A8: E-health / Telegneeskunde /Cognitie

Freepaper session A3: Top 4 orals

O001: Health trajectories up to 3 years post-hospitalization for COVID-19: long-term outcomes of the CO-FLOW study – Julia Berentschot
O002: Early patient-specific prediction of upper limb recovery in stroke: a machine learning approach – Govert van der Gun
O003: Parental experiences and needs during disclosure of a (high risk of) cerebral palsy diagnosis of their child: a scoping review – Jet van der Kemp
O004: Combined personalized home-based aerobic exercise and coaching improve physical fitness in people with neuromuscular diseases – Eric Voorn
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

OI-01: Providing support within a pediatric healthcare team to increase the use of technology to attain treatment goals and improve care – Bonita Janse
OI-02: Big data in rehabilitation: Rehablines databank to (re)use clinical data for scientific research in rehabilitation – Leonie Krops en Klaske van Kammen
OI-03: HemON-NL: ARC Therapy to restore hemodynamic stability and trunk control in people with spinal cord injury – Ilse van Nes
OI-04: The design and evaluation of a lightweight knee-ankle prosthesis for sit-to-stand support – Bob van der Windt

Freepaper session A5: Brain injury

O005: The supplementary motor area response to whole-body balance perturbations is affected by stroke severity and age – Joris van der Cruijsen
O006: Validity and clinical utility of the Screening Visual Complaints questionnaire-acquired brain injury (SVCq-abi) – Vera Linde Dol
O007: Health Intelligence for Neurorehabilitation Care – Ruud van der Veen
O008: Enhancing stroke rehabilitation: the added value of sensor-based tests on recovery predictions – Natasja Wouda

Freepaper session A6: Neuromuscular diseases / Covid

O009: Post-exertional malaise in patients with COVID-19 at 3 years after hospital discharge; long-term outcomes of the CO-FLOW study – Martine Bek
O010: How should moderate to vigorous physical activity be measured in patients with neuromuscular diseases: with accelerometry or heart rate monitoring? – Mattijs de Kleuver
O011: Quality of Life of the Dutch population of people living with MND evaluated with the PROMIS-10 Global Health – Ann Katrin Schmidt
O012: Addressing stigma to improve quality of life outcomes among people with neuromuscular diseases – Marion Sommers-Spijkerman

Freepapersession A7: Bewegen/Fitness/Voeding

O13: Action observation with motor simulation improves recovery from loss of balance in older adults with a history of falls – Lotte Hagedoorn

O14: Benefits of resistance training are not preserved after cessation of supervised training in prostate cancer patients on androgen deprivation therapy – Lisanne Houben

O15: Nutritional intake and nutritional status in people with a major dysvascular lower limb amputation: a scoping review – Aniek Kolen

O16: The steep ramp test: a practical exercise test that's reliable and valid to assess cardiorespiratory fitness in apparently healthy adults – Ingeborg Trul-Kreuze

Freepapersession A8: E-health/Telegneeskunde/Cognitie

O017: Blended care versus standard care in cardiac rehabilitation – Frederieke van den Akker

O018: Application of an existing virtual reality-based pain management training in persons with spinal cord injury pain – a pilot study – Joost Baardman

O019: Psychometric properties of the cognition in daily life scale (CDL) – Fleur Domensino

O020: Allied Rehabilitation using caregiver-Mediated exercises combined with telerehabilitation for Stroke (ARMed4Stroke): a randomized controlled trial – Marijn Mulder

O001

Health trajectories up to 3 years post-hospitalization for COVID-19: long-term outcomes of the CO-FLOW study

Msc Julia Berentschot[1], MSc L.M. Bek[2], PhD M.E. Hellemons[1], Prof, PhD G.M. Ribbers[2,3], Prof, PhD J.G.J.V. Aerts[1], PhD M.H. Heijenbrok-Kal[2,3], PhD H.J.G. van den Berg-Emons[2]
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[2]Department of Rehabilitation Medicine, Erasmus MC, University Medical Center Rotterdam,
[3]Rijndam Rehabilitation

Introduction Many COVID-19 patients suffer from long-term health problems, but health trajectories up to three years follow-up are limited.

Objectives To assess the 3-year trajectories of comprehensive health outcomes in patients hospitalized for COVID-19.

Patients We included 650 patients (median age 60.0 [IQR 53.0-67.0] years; 449 [69%] male) who had been hospitalized for COVID-19; 273 (42%) patients received ICU-treatment.

Added value for patients Recognition of prominent health problems 3 years after COVID-19 infection.

Methods Questionnaires (a.o., recovery, fatigue, sleep quality, cognitive failure, health-related quality of life [HRQoL]) were assessed at 3, 6, 12, 24, and 36 months post-hospitalization. Generalized estimating equations were used to assess health trajectories.

Results Fatigue and HRQoL significantly improved after hospital discharge, while cognitive failures significantly worsened post-discharge; sleep quality did not significantly change over time. Although fatigue improved post-discharge, scores significantly worsened from 2 to 3 years follow-up ($p<0.001$). Similarly, cognitive significantly worsened ($p<0.001$) from 2 to 3 years.
At 3 years, still 76% (225/415) of patients reported incomplete recovery. Questionnaires revealed that 55% (163/295) of patients still had fatigue, 63% (176/286) poor sleep quality, and 28% (80/283) cognitive failures. For HRQoL, the median EQ-5D-5L index was 0.85 (0.70-0.92).

Discussion and conclusion Many hospitalized patients had not completely recovered from COVID-19 by 3 years and suffered from multiple health issues, which may worsen over time.

Clinical message Investigation into the underlying mechanisms, potential pharmacological treatment options, and the role for rehabilitative care is needed to support recovery after hospitalization for COVID-19.

O002

Early patient-specific prediction of upper limb recovery in stroke: a machine learning approach

MSc Govert Van Der Gun[1], Prof. Gert Kwakkel[2], MSc L. Hoogendam[3], PhD Erwin van Wegen[2,4], Prof. Carel Meskers[2,4,5], Prof. Ruud Selles[1,3]
[1]Erasmus MC, University Medical Center Rotterdam, Department of Rehabilitation Medicine, [2]Amsterdam UMC, Department of Rehabilitation Medicine, [3]Erasmus MC, University Medical Center Rotterdam, Department of Plastic, Reconstructive, and Hand Surgery, [4]Amsterdam UMC, Amsterdam Movement Science, [5]Amsterdam UMC, Amsterdam Neuroscience
Introduction: Despite various existing models, early-stage prediction of upper limb recovery post-stroke remains challenging due to the substantial inter-individual variability and the complex non-linear recovery trajectories.

Objective: To compare the performance of an XGBoost machine learning model predicting arm-hand capacity at six months post-stroke against a current state-of-the-art mixed model.

Patients: 451 first-ever ischemic stroke patients from four Dutch cohort studies.

Added value for patients: Accurate patient-specific predictions early post-stroke are critical for setting realistic treatment goals, optimizing rehabilitation strategies, and guiding clinical decision-making.

Methods: An XGBoost model was fitted using six months of serial Action Research Arm Test (ARAT) measurements and clinical assessments of shoulder abduction and finger extension (SAFE). The model's performance was validated on a hold-out set and tested against a traditional mixed model using median absolute error as the evaluation metric.

Results: The XGBoost model showed significantly better performance when compared to the mixed model. An average reduction in prediction error of 70% was found, favouring XGBoost (i.e. 4.2 points versus 13.7 points on the ARAT). At six weeks post-stroke, the median error decreased from 4.2 to 2.7 points.

Discussion and conclusion: The XGBoost model provides more accurate predictions of upper limb recovery. Future research should validate the model in broader, more contemporary patient cohorts and focus on further increasing the predictive performance in patients with poor baseline functioning.

Clinical message: XGBoost's superior performance, interpretability, and ease of integration into clinical workflows make it a valuable tool for improving stroke rehabilitation practices.

O003

Parental experiences and needs during disclosure of a (high risk of) cerebral palsy diagnosis of their child: a scoping review

MD Jet Van Der Kemp[1], PhD Marjolijn Ketelaar[1,2], PhD Ingrid Rentinck[3], PhD Marion Sommers-Spijkerman[1], MD PhD Manon Benders[4], MD PhD J.W. Gorter[1,2,5]
[1]Center of Excellence for Rehabilitation Medicine, UMC Utrecht Brain Center, University Medical Center Utrecht, and De Hoogstraat Rehabilitation, [2]Canchild, Center for Childhood Disability Research, McMaster University, [3]Department of Pediatric Psychology, Wilhelmina's Children Hospital, University Medical Center Utrecht, [4]Department of Neonatology, Wilhelmina Children's Hospital, University Medical Center Utrecht, [5]Department of Rehabilitation, Physical Therapy Science and Sports, University Medical Center Utrecht

Objective: To synthesize the current knowledge about parents' experiences and needs regarding communication during the process of disclosure of the diagnosis of their child with (or at risk of) CP.
Added value for patients: By understanding parental experiences and needs in this process, we aim to improve communication with and support of parents.
Search strategy: A systematic literature search using PubMed, Embase, CINAHL and PsycINFO.
Selection of articles: The search yielded 2083 articles. Titles, abstracts and full texts were screened independently by two reviewers.
Evaluation of articles and results: We qualitatively explored parent-reported experiences and needs across 19 included studies, using thematic analysis. Six themes were identified, three in relation to experiences (i.e. preceding experiences and feelings, perceptions of disclosure, emotional impact) and three in relation to needs (i.e. transparency in information, supportive attitude, autonomy). Despite high variability in parental needs, most studies reported the need for i) honest and clear information, ii) good communication skills, and iii) emotional and practical support after diagnosis.
Conclusions: Our findings suggest that parents' experiences and needs in the period when their child's diagnosis of (high risk of) CP is communicated are highly variable, due to an interplay of personal and contextual factors. To facilitate good communication during disclosure, it is crucial that health care professionals assess and understand this individual process, and consider parents' needs for open communication and autonomy. Therefore, professionals need to attune to parents' needs and individual preferences regarding conversations about their child with (or at risk of) CP.

O004

Combined personalized home-based aerobic exercise and coaching improve physical fitness in people with neuromuscular diseases

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Introduction: The quality of evidence for improving physical fitness of people with neuromuscular diseases (NMD) by means of aerobic exercise is low.

Objective: To evaluate the efficacy of combined personalized home-based aerobic exercise and motivational interviewing coaching on physical fitness in people with neuromuscular diseases (NMD), compared to usual care.

Patients: 91 participants with various NMD, randomized to the intervention (n=44) or usual care (n=47).

Added value for patients: High quality evidence will contribute to taking away uncertainties regarding exercise recommendations within NMD.

Methods: In a multicenter, assessor-blinded, 2-armed randomized controlled trial, participants were randomized (ratio 1:1) to a 6-month intervention (combined personalized home-based aerobic exercise and coaching) or usual care. The primary outcome, physical fitness, measured as peak oxygen uptake (VO2peak) and secondary outcomes (daily activity, quality of life, physical functioning and creatine kinase level) were assessed at baseline, directly post-intervention, and at 6 and 12 months post-intervention.

Results: The mean group difference in VO2peak was 2.2 ml/min/kg (95% CI: 0.2-4.1) directly post-intervention, and 1.7 ml/min/kg (95% CI: 0.1-3.4) over time, in favor of the intervention group. There were no significant between group differences in secondary endpoints, and in total 25 and 22 adverse events were reported in the intervention and usual care group, respectively.

Discussion and conclusions: Home-based aerobic exercise and coaching is safe and improves physical fitness in people with NMD, but without evidence of improved daily activity, quality of life and physical functioning.

Clinical message: This home-based approach has good potential for a wider implementation.

OI-01

Providing support within a pediatric healthcare team to increase the use of technology to attain treatment goals and improve care.

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Topic: Implementation of technology in pediatric rehabilitation teams

Relevance:

In today's society technology is an essential part of our daily life, especially in children's perception. In pediatric rehabilitation, however, technology is barely used to attain treatment goals. Therefore, Basalt Rehabilitation started a one-year pilot in February 2024 in which they employed a human movement technologist (HMT) for eight hours a week at the children's department to implement technology in treatments. The HMT is part of the treatment team and therefore easily accessible for the therapists, who often have little affinity to technology and consequently are unaware of its possibilities.

Current status: In the first three months of the pilot, the HMT was consulted 16 times to support health professionals to integrate technology in the treatment goals for 16 unique children. Examples are questions about creating play options for severely physical disabled children, increasing independence through technology and broader application of Assistive Communication devices. Additionally, the HMT has started improving the workflows for computer and assistive communication treatment goals. Lastly, the HMT has also integrated existing technology in the treatment plans of children and raising awareness for the use of technology within the team.

Plan of action: The short-term goal is to enhance care with technology and raise awareness within the pediatric team. We aim to evaluate the pilot and establish HMT as a permanent feature in the Human Movement Technology bachelor's curriculum. The long-term goal is to teach therapists to use technology independently and expand HMT to more teams.

OI-02

Big data in rehabilitation: Rehablines databank to (re)use clinical data for scientific research in rehabilitation

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Topic: Within the Center for Rehabilitation of the University Medical Center Groningen (UMCG-CvR) we developed Rehablines©; a further-use databank which enables the re-use of clinical data for research and education purposes, after patients consent. Rehablines aims to (1) efficiently conduct high-quality research into patient characteristics and underlying disease processes, (2) prove insight into treatment effects and efficiency, and (3) personalize treatment .

Relevance: Evidence-based practice is crucial in rehabilitation medicine to ensure that treatments are effective, efficient, and tailored to individual patient needs. In research a shift occurs from the use of existing research methods (e.g. trials) to the use of real-world data. The latter increases generalizability and statistical power, combined with a lower patient burden. Rehablines is a unique databank that purely focuses on the re-use of clinical data for research, and is innovative being the first in its kind on rehabilitation in The Netherlands.

Current status: After obtaining ethical approval of the Medical Ethical Committee of the UMCG, a successful pilot was performed in the pain rehabilitation team (n=50). From January 1, 2024, Rehablines was implemented in all (in- and outpatient) rehabilitation teams treating adult patients in the UMCG-CvR. Current inclusion number is 574.

Plan of action: Future steps are the inclusion of pediatric rehabilitation and performing the first scientific studies using this promising research facility. We will investigate linking data from Rehablines to other cohort data (e.g. Lifelines, OncoLifes, AcuteLines) to have the unique opportunity to follow patients also prior to, and beyond their rehabilitation period.

OI-03

HemON-NL: ARC Therapy to restore hemodynamic stability and trunk control in people with spinal cord injury

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Relevance:
A spinal cord injury (SCI) disrupts motor, sensory and autonomic pathways from the brain to the body. This leads to paralysis below the level of injury and several autonomic disturbances. Impaired blood pressure control can lead to severe hypotensive and hypertensive events, negatively impacting overall health and quality of life. ONWARD Medical has developed the investigational ARCIM System, which delivers targeted epidural spinal cord stimulation (SCS) to improve blood pressure regulation and trunk stability. A first feasibility study conducted at a single site in Switzerland (HemON-CH) has shown promising results. A follow-up study performed in the Netherlands (HemON-NL) aims to establish whether the ARCIM System can be successfully implanted and configured to replicate the positive blood pressure management and trunk control results in additional study participants and in an additional clinical site, leading to improved quality-of-life.

Current status
The first two participants of the HemON-NL study, both with motor complete SCI above Th6, underwent surgery at Radboudumc in September 2023 and February 2024. Both participants were discharged from post-operative care within three days and started stimulation sessions five days after surgery at Sint Maartenskliniek. No serious adverse device effects were reported. To date, this study demonstrates that the ARCIM SCS System can improve blood pressure management and trunk stability, leading to improved duration of verticalization, reduced muscle fatigue and improved trunk control.

Plan of action
Our aim is to enroll additional participants in this clinical study to gain more insights into potential benefits of the ARCIM Therapy.

OI-04

The design and evaluation of a lightweight knee-ankle prosthesis for sit-to-stand support

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Topic: Elderly transfemoral amputees face difficulties when rising from a chair. The most commonly used knee prostheses for this group do not provide support in knee extension requiring all support for standing up to come from the sound limb and arms. Additionally the prosthetic ankle is fixed in a neutral position of 90 degrees, making it challenging to achieve a stable sit-to-stand transition. Our goal is to design and evaluate a knee-ankle prosthesis that can assist the user in standing up.

Relevance: Rising from a chair is one of the most demanding daily life activities for leg prosthesis users. This innovation will significantly benefit them, enabling greater independence and the ability to live at home without assistance. Possible interested parties are rehabilitation doctors with a focus on lower limb amputations and prostheses, physiotherapists and instrument makers.

Current status: A first prototype developed by Smit and Vallery, is known as the Energy Restoring intelligent Knee (ERiK). The prototype features a knee joint with a coupled gas spring and a standardized fixated prosthetic foot. Energy is stored in the gas spring during sitting, which can be reused during standing-up. While the first results are promising there remains a need for an ankle joint capable of proper dorsiflexion to able to stand-up.

Plan of action: We plan to develop a new knee-ankle prosthesis that utilizes energy regeneration to support standing up support and ensure a stable stand-up motion. After development the prototype will be evaluated in a clinical setting with elderly transfemoral amputees.

O005

The supplementary motor area response to whole-body balance perturbations is affected by stroke severity and age

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The risk of falling increases with (healthy) aging and due to neurological impairments like stroke. EEG studies in healthy young individuals show that losing balance causes prominent activity in the supplementary motor area (SMA). We compared the SMA response to balance perturbations in people with chronic stroke (PwS, n=26), healthy older adults (HO, n=14), and healthy young adults (HY, n=15).

Participants received 200 perturbations: twenty trials in five directions for the paretic and the non-paretic stepping leg. Participants were instructed which leg to use for stepping. We recorded 126-channel EEG and reconstructed SMA activity and evaluated the time-frequency response to the balance perturbations.

A strong increase in theta (4-8 Hz) alpha (8-12 Hz) and low beta (14-20 Hz) power was observed at ~180 ms post-perturbation (N1). HY showed substantially greater alpha power increases than HO and PwS, possibly indicating stronger inhibition of the automatic postural responses to enable 'switching' to compensatory stepping. Upon the foot strike of the compensatory step, theta power was higher in PwS and HO than in HY, suggesting a greater need to reassess stability. SMA activity in the theta and alpha rhythms was symmetrical in PwS with good motor recovery (Fugl-Meyer Assessment of the Lower Extremity (FMA-LE) ≥24), but not in those with poorer recovery (FMA-LE<24).

This study reveals distinct cortical dynamics in balance recovery among HY, HO, and PwS. Asymmetrical dynamics may be related to reduced balance capacity. A follow-up study will evaluate the effects of perturbation-based training on the cortical correlates of reactive stepping.

O006

Validity and clinical utility of the Screening Visual Complaints questionnaire-acquired brain injury (SVCq-abi)

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Introduction:
Visual complaints are common after acquired brain injury (ABI) but often overlooked in rehabilitation settings. The 23-item Screening Visual Complaints questionnaire-acquired brain injury (SVCq-abi) was constructed to assess visual complaints following ABI.

Objective:
To validate the SVCq-abi in ABI patients and assess its clinical utility.

Added value for patients:
Timely detection of visual problems using the SVCq-abi can guide further care and referrals, potentially improving rehabilitation outcomes and quality of life.

Patients & Methods:
The SVCq-abi was administered to ABI patients following an inpatient or outpatient rehabilitation program. Confirmatory factor analysis (CFA) was performed to determine the fit of a 5-factor model. Additionally, internal consistency and the distribution of responses on the SVCq-abi was assessed.

Results:
A total of 156 patients with ABI completed the SVCq-abi. The CFA showed a good fit for the 5-factor model ($\chi 2/df = 1.39$, CFI = 0.94, RMSEA = 0.50). Internal consistency of four factors ranged from moderate to good ($\omega = 0.60$ to 0.82). One factor demonstrated insufficient internal consistency ($\omega = 0.42$). In total, 78% of patients reported at least one visual complaint, with a median of three complaints per patient. Common complaints included ‘unclear vision’, ‘difficulty reading, and ‘sensitivity to light’.

Discussion and conclusions:
Patients with ABI may experience a range of visual complaints. The SVCq-abi shows a robust 5-factor structure with sufficient internal consistency. One subscale requires further refinement.

Clinical message:
The SVCq-abi may be a promising tool for rehabilitation professionals to screen for visual complaints in patients with ABI.

O007

Health Intelligence for Neurorehabilitation Care

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Introduction: Acquired Brain Injury (ABI) affects millions of patients globally. The hallmark heterogeneity within the ABI population presents unique challenges and opportunities for precision neurorehabilitation.

Objective: Using structured clinical data and advanced analytical methods to provide a health intelligence framework that facilitates (i) comprehensive patient monitoring, (ii) continuous care evaluation; and (iii) scientific research aimed at better understanding and prediction of differences in patient outcome.
Patients: 150 young adults with severe ABI, predominantly TBI (68%) or CVA (19%) have been prospectively captured in the program since April 2021.

Added Value for Patients: The approach provides patients and the interdisciplinary team with comprehensive information for diagnosis and progress monitoring during treatment, providing a cornerstone for more personalized care.

Methods: Structured clinical data is collected using a measurement feedback system with measurements across all domains. Data quality is continuously monitored. Data is available in real-time via patient dashboards and used for care evaluation and research.

Results: Results will be presented regarding the development and validation of prediction models showing considerable performance for prediction of independence at different timepoints (R2 = 61.4 - 77.6%). Additionally, we will present cluster analysis results identifying six patient phenotypes based on multidisciplinary functioning profiles at admission.

Discussion and Conclusions: Implementing structured clinical data collection is feasible in neurorehabilitation and shows potential to drive innovation in neurorehabilitation care. This approach leverages opportunities to enhance societal accountability of rehabilitation medicine.

Clinical Message: Structured clinical data enhances diagnosis, patient monitoring, and tailored treatment strategies, advancing the field towards precision neurorehabilitation.

O008

Enhancing stroke rehabilitation: the added value of sensor-based tests on recovery predictions

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Introduction
The integration of sensors in prognostic modeling holds promise due to their ease of use, frequent monitoring capability, and ability to quantify recovery in physical functioning. The added value of sensor-based tests over conventional tests in explaining ADL independence and walking ability was explored in subacute stroke patients.

Methods
Data were collected from 115 patients with first-ever or recurrent stroke admitted to a (geriatric) rehabilitation center. Assessments included Motricity Index (MI), Trunk Control Test (TCT), Berg Balance Scale (BBS) and sensor-based (IMU) balance and gait tests. Hierarchical multivariate regression analyses examined the added value of IMU tests over conventional tests (MI, TCT or BBS) in explaining variance in ADL independence (Barthel Index, BI) and walking ability (Functional Ambulation Categories, FAC).

Results
The largest proportion of variance in BI was explained by MI and symmetry measured during the 2MWT without walking aid (Adj. R2 = .157; p = .029). In the FAC, the most variance was explained by a model with MI and tempo with walking aid (Adj. R2 = .233; p = .002). Adding sensor-based variables to models with the BBS did not significantly add value in explaining variance in BI or FAC.

Discussion
Measuring tempo and symmetry with IMUs in combination with MI and TCT added value in explaining ADL independence and walking ability. Postural sway measured with IMUs did not significantly contribute to these outcomes. These findings enhance the understanding of using IMUs and highlight the caution needed when applying IMUs to predict physical recovery after stroke.

O009

Post-exertional malaise in patients with COVID-19 at 3 years after hospital discharge; long-term outcomes of the CO-FLOW study

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Introduction A significant percentage of patients hospitalized for COVID-19 experience post-exertional malaise (PEM), profoundly affecting their daily life activities.

Objectives To evaluate the prevalence of PEM, predictors for PEM, and its association with other health outcomes 3 years after hospitalization for COVID-19.

Patients Adults (n=292) hospitalized for COVID-19 followed up to 3 years post-discharge.

Added value for patients Insight into prevalence of PEM, predictors, and associated outcomes may help to tailor treatment to individual needs.

Methods Patient-reported outcome measures (PROMs): PEM [DePaul Symptom Questionnaire], cognitive failures [Cognitive Failures Questionnaire], fatigue [Fatigue Assessment Scale], anxiety and depression [Hospital Anxiety and Depression Scale], and health-related quality of life (HRQoL) [EQ5D5L] were collected at 3 years after hospitalization for COVID-19. Spearman's correlation and logistic regression were used.

Results At 3 years, 36% (105/292) of patients experienced PEM. Among them, 47% (46/98) experienced PEM after minimal physical effort, 29% after minimal mental effort, and 37% felt worse for ≥4 hours post-activity. Predictors for PEM were female sex and pulmonary history. Higher PEM scores were significantly associated with more cognitive failures, anxiety, depression, fatigue, and worse HRQoL (all $p<0.001$).

Discussion and conclusion Three years after hospitalization for COVID-19, a third of patients experienced PEM. Females and patients with pulmonary history were more likely to develop PEM. PEM was associated with multiple health problems.

Clinical message Persistent PEM after hospitalization for COVID-19 should be assessed in relation to other health problems after COVID-19.

O010

How should moderate to vigorous physical activity be measured in patients with neuromuscular diseases: with accelerometry or heart rate monitoring?

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Introduction It is unknown how two often used methods for assessing moderate to vigorous physical activity (MVPA) relate to each other in patients with neuromuscular diseases (NMD).

Objective To compare accelerometry and heart rate monitoring (HRM) for assessing MVPA in patients with NMD.

Patients Forty-one patients (24 males, mean age 56.3±15.9) diagnosed with Charcot-Marie-Tooth disease (n=22), post-polio syndrome (n=6), and other NMD (n=15).
Added value for patients Accurate assessment of MVPA is essential to be able to use it as an outcome for monitoring disease progression, evaluating intervention effects and developing physical activity recommendations.

Methods We used baseline data from a randomized controlled trial. Average minutes spent per day in MVPA were measured over at least two days with accelerometry (using the Freedson algorithm to quantify MVPA) and HRM (>40% of heart rate reserve [HRR] was considered MVPA). HRR was assessed with maximal exercise testing.

Results There was a significant mean difference in MVPA (106.8 minutes, 95% CI -138.9 to -74.6) between accelerometry (19.4±19.0) and HRM (126.2±95.2); limits of agreement were -306.3 to 92.8 minutes. The intraclass correlation coefficient was -0.05 (95%CI:-0.18 to 0.14).

Discussion and conclusions We found a systematic bias between accelerometry and HRM, and limits of agreement were wide. The correlation between both methods was poor.

Clinical message Current accelerometry algorithms for assessing MVPA were not validated for NMD. Since they generally do not take into account the reduced physical capacity, and hence, tend to underestimate MVPA, clinicians should consider HRM for assessing MVPA in NMD.

O011

How do people living with MND and their carers experience specialized care? Development and validation of a patient reported questionnaire

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Background: Evaluation guidelines for eHealth recommend to use patient-reported outcome and experience measures (PREM) to capture the impact of these innovations on Quality of Care (QoC).

Methods: We developed and validated a PREM that capture patient experience with MND care. The questionnaire was informed by literature review, input of patient organisations and experts. We send the online questionnaire to pMND of the national registry, and assessed reliability (5-day re-test), Intraclass Correlation Coefficient (ICC), Wilcoxon-test (W), structural validity and internal consistency with an Exploratory Factor Analysis (EFA), Principle Component Analysis (PCA), and the measurement error. We reduced the items by ICC<0.6, W (p>0.001), EFA (r<0.4), and PCA and calculated a QoC total score.
Results: The primary questionnaire included selected items of general and disease-related PREMs. The preliminary questionnaire consisted of 23 items, rated on a 10-point Numeric Rating Scale. 58% responded to the survey of which 279 pMND (74%) were in care of a specialized MND care team and 249 pMND completed the re-test. One unidimensional scale was identified. Eight items were excluded based on W (n=4), EFA (n=1), and PCA (n=3). The final set consisted of 15 items. The total QoC mean score was 9.2 and was not significantly influenced by diagnosis (p=0.123), disease stage (p=0.789), or age (p=0.014). Participants were highly satisfied with Dutch MND care.

Conclusion: We developed and validated a questionnaire PREM to evaluate Quality of Care in MND care. In future research the questionnaire will be used to evaluate the contribution of eHealth innovations on QoC.

O012

Addressing stigma to improve quality of life outcomes among people with neuromuscular diseases

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Introduction: Stigma is thought to have a profound impact on quality of life (QoL) among people living with neuromuscular diseases (NMD), but existing empirical evidence is limited.

Objective: This study sought to explore the independent associations of enacted stigma (social exclusion) and felt stigma (shame, fear of exclusion) with QoL.

Patients: Outpatients with NMD from an academic medical center.

Methods: A cross-sectional survey assessing a) two general QoL domains (physical and mental QoL); b) two specific QoL domains (emotional distress, satisfaction with participation); c) two forms of stigma (enacted and felt stigma); d) psychological factors (disease acceptance, self-compassion, self-criticism, self-esteem); e) clinical factors (independence in activities of daily living, presence of physical/mental comorbidities); and f) socio-demographic factors (gender, age). Associations of enacted and felt stigma with all four QoL domains were analysed using hierarchical multivariable linear regression analyses, adjusting for socio-demographic, clinical and psychological factors.

Results: Data of 261 patients (44% response rate) were included in the analyses. Significant associations of felt stigma with physical QoL, mental QoL, emotional distress and satisfaction with participation were observed. Enacted stigma was significantly associated with all QoL domains, with the exception of emotional distress.

Discussion and conclusions: Our findings suggest that higher levels of stigma, most notably felt stigma, are associated with a lower QoL, and that this association is affected by psychological factors.

Clinical message: This study emphasizes the importance of addressing stigma and related psychological factors in the monitoring and treatment of people living with NMD.

O013

Action observation with motor simulation improves recovery from loss of balance in older adults with a history of falls.

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Introduction: Perturbation-based training effectively improves reactive stepping responses to prevent falling following a loss-of-balance. However, its clinical uptake is limited. Furthermore, there is currently no safe and feasible option to perform this type of training at home.

Objective: We aimed to investigate the effects of action observation with motor simulation (AOMS) on reactive stepping in older adults with a history of falls, and to evaluate whether effects differ between AOMS of a human actor or of a virtual avatar.

Patients and Methods. Seventy participants (68.3±5.2 years old; 52 females) were subjected to a series of 20 balance perturbations that elicited backward reactive steps. The AOMS group was tested following AOMS of reactive steps as demonstrated by either a human actor or virtual avatar. The control group was tested without any prior observation. The primary outcome was reactive step quality, quantified as the leg angle at stepping-foot contact.

Results. When recovering from real perturbations, we found significant gains in reactive step quality in the participants in the AOMS groups compared to the control group. Both groups demonstrated gradual improvements in step quality across the 20 repetitions, yet the AOMS participants improved at a substantially faster rate compared to the controls. Both forms of AOMS yielded similar gains.

Discussion and conclusions, clinical message. The finding that the novel and scalable concept of AOMS improves recovery from balance loss in older adults with a history of falls suggests that it may have potential for implementation in unsupervised home-based interventions.

O14

Benefits of resistance training are not preserved after cessation of supervised training in prostate cancer patients on androgen deprivation therapy

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Introduction: Supervised resistance exercise training (RET) counteracts the adverse effects of androgen deprivation therapy (ADT) on body composition, muscle mass and strength in prostate cancer patients (PCa). It is unknown whether these effects are maintained after program cessation.

Objective: To determine whether supervised RET-obtained improvements during ADT are maintained after program cessation.

Patients: PCa patients on ADT.

Methods: The exercise group (EX, n=37) performed 20 weeks of supervised RET. Thereafter, patients were advised to autonomously continue training. The control group (CON, n=31) only received usual care. Outcome measures were compared between baseline and after one year. Changes during the intervention (baseline vs 20 weeks) and follow-up period (20 weeks vs 1 year) were descriptively explored.

Results: In EX, 83% continued training themselves. After 1 year, fat mass gains were attenuated in EX compared to CON (1.2±2.6 and 2.8±1.9 kg, respectively; timextreatment effect P=0.032). Lean mass and quadriceps muscle cross-sectional area decreased over time, with no differences between groups (overall -0.7±2.3 kg and -2.2±2.9 cm^2, respectively; time effects, both P<0.05). For muscle strength, ~5% increase was observed in EX, significantly different from ~10% decrease in CON (P<0.001). Subsequent analyses showed that the initial exercise training-obtained gains in lean mass, muscle mass and strength in EX compared to CON, all declined during the follow-up period.

Discussion and conclusions: PCa patients on ADT are not capable to autonomously maintain exercise-obtained gains of 20-weeks supervised training over a 1-year period.

Clinical message: More focus on ways to increase sustainability of exercise programs is required.

O15

Nutritional intake and nutritional status in people with a major dysvascular lower limb amputation: a scoping review.

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Objective
To systematically review literature on nutritional intake, nutritional status and nutritional interventions, and to study their association with short- and long-term clinical outcomes in people with a major dysvascular lower limb amputation.

Added value for patients
This study helps determine if nutritional interventions are needed to potentially optimize clinical outcomes after amputation.

Search strategy
PubMed, Ovid, CINAHL, and The Cochrane Library were searched. Keywords in the search strategy included [nutritional intake], [nutritional status], [nutritional interventions] and [lower limb amputation] and their synonyms, specific to each database.

Selection of articles
Studies were included if they described people scheduled for or who had undergone a major dysvascular uni- or bilateral lower limb amputation (Syme and more proximal level), a nutritional assessment method or intervention, quantitative data, and were written in English or Dutch.

Evaluation of articles and results
Out of the 3,038 unique papers identified, 30 studies were included. The methodological quality was predominantly weak (29 studies), with only one study rated as moderate, using the Effective Public Health Practice Project tool. Diverse methods were used to assess nutritional intake and status. The percentage of individuals with poor nutritional status ranged from 1% to 100%. Some studies reported an association between measures of poor nutritional status and adverse short- and long-term clinical outcomes.

Conclusion
The prevalence of a poor nutritional status and the relation between poor nutritional status and clinical outcomes is inconclusive in the major dysvascular lower limb amputation population, due to limited study quality. High-quality studies are needed.

O16

The steep ramp test: a practical exercise test that's reliable and valid to assess cardiorespiratory fitness in apparently healthy adults.

MSc Ingeborg Trul - Kreuze[1,2,3], PhD Bart C. Bongers[4,5], PhD Darcy Ummels[6,7], PhD Caspar Mylius[2], PhD Anuschka S. Niemeijer[1], MSc Tim Blatter[8], PhD Marianne K. Nieuwenhuis[1,2,3], PhD Han Houdijk[3], PhD Moniek Akkerman[1,2]
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Introduction: An inverse correlation exists between cardiorespiratory fitness (CRF) and the incidence of diseases and all-cause mortality in apparently healthy adults. Despite its importance for health, functioning, and risk stratification, CRF is currently not routinely assessed in clinical practice or public health. The steep ramp test (SRT), a short and practical exercise test on a bicycle ergometer, could facilitate more structural CRF assessment. To that end, its reliability and validity must first be established.

Objective: To investigate the test-retest reliability and criterion validity of the SRT to assess CRF in apparently healthy adults aged 25-85 years.

Methods: To determine test-retest reliability, participants performed the SRT twice within 2-14 days. To determine criterion validity, participants performed the SRT and cardiopulmonary exercise testing (CPET) on a single day. Reliability was assessed using intraclass correlations (ICC) between the first and second SRT. Validity was assessed by calculating Pearson's correlation between the oxygen uptake at peak exercise (VO_2peak) achieved at CPET and work rate at peak exercise (WRpeak) achieved at the SRT.

Results: Test-retest reliability was considered high, with an ICC of 0.991 (95% confidence interval: 0.987-0.995; $p<0.001$, $n=67$). A very strong correlation ($r=0.944$, $p<0.001$, $n=59$) was found between CPET VO2peak and SRT WRpeak.

Conclusion: The SRT is reliable and valid to assess CRF in apparently healthy adults.
Practical implication: Based on its reliability and validity, the SRT should be considered to assess CRF more structurally in clinical practice and public health. This helps to predict current and future health and functioning outcomes.

O017

Blended care versus standard care in cardiac rehabilitation

Dr. Frederieke Van Den Akker[1], G. Volker[1], dr. S.F. Rodrigo[1]
[1]Basalt

Introduction
Standard care might not be superior to blended care, while blended care offers additional advantages.

Objective
Determine whether blended care is non-inferior to standard care in cardiac rehabilitation.

Patients
98 consecutive patients meeting inclusion criteria enrolled in the blended cardiac rehabilitation program starting April 2023, compared to 98 matched historical controls in standard care.

Methods
Patients completed the blended cardiac rehabilitation program consisting of 2 digital or physical sessions weekly for 6-12 weeks. Stress tests were performed at start (T0) and end (T1) of the program measuring maximal power and VO2max. A non-inferiority analysis was performed assuming a non-inferiority margin of 15W.

Results
98 patients (23% females, mean age 59) were included in blended care compared to 98 patients in standard care (23% females, mean age 61). Maximum exercise capacity increased from 154±53 to 175±57Watt in blended care, compared to 118±54 to 137±60Watt in standard care. This provided a delta score of 21W (95%CI 14.6-27.5) for blended care and 19.1W (95%CI 16.8-21.4) for standard care, both $p<0.001$. Noninferiority was not conclusively proven.
VO2max increased from 20.6±6 to 22.6±5 O2/kg in blended care, giving a delta of 1.8 (95%CI 0.6-2.9). In standard care VO2max went from 17±6 to 19±6O2/kg, with a delta 1.8 (95%CI 1.5-2.1).

Discussion and conclusions
Blended care in cardiac rehabilitation shows similar significant improvements in exercise capacity, however it remains inconclusive whether it is non-inferior to standard care.

Clinical message
These results indicate more research is needed to determine non-inferiority of blended care.

O018

Application of an existing virtual reality-based pain management training in persons with spinal cord injury pain – a pilot study

Md Joost Baardman[1,2], PhD Christel Van Leeuwen[1,2], Prof. Marcel Post[1,3], MD PhD Janneke Stolwijk-Swüste[1,2,4]
[1]Center of Excellence for Rehabilitation Medicine, UMC Utrecht Brain Center, University Medical Center Utrecht, and De Hoogstraat Rehabilitation, [2]Department of Spinal Cord Injury Rehabilitation, De Hoogstraat Rehabilitation, [3]University of Groningen, University Medical Center Groningen, Department of Rehabilitation Medicine, [4]Department of Rehabilitation, Physical Therapy Science & Sports, UMC Utrecht Brain Center, University Medical Center Utrecht

Introduction
Pain is common after spinal cord injury (SCI) and considerably impacts mental well-being. Reducept is a Virtual Reality (VR) pain education and pain management training designed for patients with chronic pain. This pilot study investigates the feasibility and possible effects of Reducept training for SCI pain.

Methods
Single rehabilitation centre, pre- and post-Reducept comparison with 4 inpatients and 15 outpatients, from June 2022 to July 2023. Reducept was provided for four weeks. Participants practiced for at least 2-3 times per week. Reducept exercises are based on pain education and contain elements of pain visualization techniques, Cognitive Behavioural Therapy, Eye Movement Desensitization and Reprocessing, and Acceptance and Commitment Therapy. User experiences and feasibility were assessed with post-intervention interviews. Questionnaires before and after the intervention examined pain, quality of life and psychological characteristics (pain catastrophizing, anxiety, depression, self-efficacy, passive coping).

Results
Most participants were positive about the training and found it feasible, though timing of training was more challenging for inpatients. Few mild, short-term side effects occurred. Pain scores on a 0-10 point scale decreased by 1.0 point (p=0.021). Satisfaction with physical health (0-10 point scale) also decreased with 1.0 point (p=0.026). A trend was found in reduction of pain catastrophizing-rumination (p=0.06), but no other significant differences were identified.

Conclusions
Implementing Reducept as a VR pain education and management training is feasible for SCI-rehabilitation and might positively impact pain and pain catastrophizing. Therefore, Reducept is integrated into standard care in our centre since 2024.

O019

Psychometric properties of the cognition in daily life scale (CDL)

Dr. Fleur Domensino[1,2], Prof. J.M.A. Visser-Meily[3,4], Prof. J.M. Spikman[5], Prof. C.M. van Heugten[2,6]
[1]Department of Psychiatry & Neuropsychology, School for Mental Health and Neuroscience (MHeNs) , [2]Limburg Brain Injury Centre, [3]Department of Rehabilitation, Physical Therapy Science and Sports, [4]Center of Excellence for Rehabilitation Medicine, Brain Center, [5]Department of Neurology, Division of Neuropsychology, , [6]Department of Neuropsychology and Psychopharmacology, Faculty of Psychology and Neuroscience

Introduction: The Cognition in Daily Life scale (CDL) was developed for structured observation of cognitive functioning in real-world settings. It consists of 65 items across six cognitive domains (alertness, processing speed and attention, perception, memory, actions, language and communication, and task behavior).

Objective: Evaluate the reliability and construct validity of the CDL.

Patients: Seventy-five inpatients with acquired brain injury (ABI) across 18 healthcare institutions in the Netherlands.

Added value for patients: Recognition of cognitive problems in daily life.

Methods: Healthcare professionals completed the CDL based on observations of participants for two consecutive weeks. Reliability was assessed using internal consistency, test-retest, and inter-rater reliability. Construct validity was evaluated using the Montreal Cognitive Assessment (MoCA), Utrecht Scale for the Evaluation of Rehabilitation (USER) cognition subscale, Hospital Anxiety and Depression Scale (HADS), and Fatigue Severity Scale (FSS) as reference measures.
Results: Preliminary analyses revealed good internal consistency (α = .703-.943) for all subscales except 'Actions'(α =.0.605). Test-retest reliability was good (ICC = .847). Inter-rater reliability was acceptable (ICC = .645) and improved with combined ratings (ICC = .784). Moreover, the CDL showed good convergent validity (MoCA (ρ = .359, $p < .01$) and USER (ρ = .698, $p < .01$)) and divergent validity (no correlations with HADS and FSS).

Discussion, conclusions, and clinical message: The CDL demonstrates good initial psychometric properties and will be adjusted according to these results. The CDL has value for clinical assessment of cognitive functioning and can be used alongside traditional neuropsychological tests for accurate diagnostics and treatment planning.

O020

Allied Rehabilitation using caregiver-Mediated exercises combined with telerehabilitation for Stroke (ARMed4Stroke): a randomized controlled trial

Msc Marijn Mulder[1,2], PhD Corien DM Nikamp[3], PhD Erik C Prinsen[3], PhD Rinske HM Nijland[1], Ing Matthijs van Dorp[4], PhD Jaap H Buurke[3], PhD Erwin EH van Wegen[2], PhD Gert Kwakkel[1,2]
[1]Amsterdam Rehabilitation Research Centre | Reade, [2]Amsterdam University Medical Centre, location VUmc, dept. Rehabilitation Medicine & Amsterdam Neuroscience, [3]Roessingh Research and Development, [4]Telerevalidatie.nl

Objective: To assess the added value of caregiver-mediated exercises combined with telerehabilitation in addition to usual care compared to usual care alone, on self-reported mobility outcome after subacute stroke.

Design: Multicentre, observer-blinded, parallel randomized controlled trial. An off-site researcher allocated treatments using minimization.

Setting: 4 rehabilitation centres in the Netherlands.

Participants: 41 patient-caregiver dyads within 3 months poststroke.
Intervention: 8-week blended care program with caregiver-mediated mobility exercises for 2.5 hours per week supported by telerehabilitation and 4 face-to-face sessions in addition to usual care.

Main measures: Self-reported mobility domain of the Stroke Impact Scale postintervention. Secondary outcomes were functional outcome, dyads' psychosocial wellbeing, care transition to the community postintervention and after 6 months.

Results: 41 dyads (21 intervention, 20 control) were randomized and 37 (N=18; N=19) were analysed following intention-to-treat. The Stroke Impact Scale mobility was not significantly different between groups postintervention (B 0.8, 95% CI -6.8–8.5, p=0.826). The secondary outcomes: 1. Caregivers' quality of life postintervention (p=0.013); 2. Caregivers' symptoms of depression postintervention (p=0.025); and 3. Independence in leisurely activities at 6 months (p=0.024); showed significant benefits in favour of caregiver-mediated exercises with telerehabilitation. A significant difference favouring controls was found in self-reported muscle strength at 6 months (p=0.002).

Conclusions: Caregiver-mediated exercises combined with telerehabilitation yielded no differential effect on our primary outcome self-reported mobility. Although the trial is underpowered, current findings are in line with previous trials. Future studies should further explore beneficial effects of caregiver involvement in stroke rehabilitation targeting psychosocial wellbeing.

Parallel Session A & B

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

- AB1. Workshop: Levend verlies, een kwestie van doorleven!?
- AB2. Workshop Organization of and role of the rehabilitation physician in amputation rehabilitation within the Geriatric Rehabilitation

AB1. Workshop: Levend verlies, een kwestie van doorleven!?

PhD Esther Hosli[1], Jelle Meuwissen[2], Tanja van Roosmalen[3]
[1]Ned. Vereniging Van Revalidatieartsen, [2]Hogeschool Utrecht, [3]LEF Verliesbegeleiding

SESSIE OMSCHRIJVING
'Levend Verlies' is de term die klinisch psycholoog en rouwexpert Manu Keirse introduceerde om de levenslange rouw aan te duiden, die je ervaart wanneer jijzelf of een naaste, getroffen wordt door een chronische ziekte of beperking. Het gaat over het verdriet dat altijd kan oplaaien, verwacht of onverwacht, door de dingen waar je dagelijks mee wordt geconfronteerd en dat soms verergert door de jaren heen.

In de revalidatie focussen we op wat wél kan. Aandacht voor levend verlies is echter ook belangrijk, omdat patiënten als dit onzichtbaar blijft vast kunnen lopen in het revalidatieproces en hun leven. De laatste jaren is er meer ruimte gekomen voor de beleving van rouw bij levend verlies bij patiënten en hun naasten, doordat een verschuiving heeft plaatsgevonden in de definitie van gezondheid en er meer aandacht is gekomen voor de dimensies kwaliteit van leven, sociaal maatschappelijk functioneren en zingeving binnen de zorg. Ofwel voor een meer holistische benadering van zorg en het bevorderen van positieve gezondheid.

Met deze workshop willen we revalidatieartsen handvatten geven om de pioniersfunctie die ze op dit gebied hebben verder vorm te geven, doordat ze de term 'levend verlies' kennen, begrijpen hoe rouw zich manifesteert in de levensloop, het kunnen herkennen in de spreekkamer en weten hoe ze van betekenis kunnen zijn.

PRESENTATIES
Beoogd voorzitter: Casper van Koppenhagen
Workshop leiders: Jelle Meuwissen en Tanja van Roosmalen

INDELING PROGRAMMA
In de workshop staan we stil bij de specifieke kenmerken van levend verlies en we kijken vanuit een theoretisch model naar rouw die keer op keer terugkeert in het leven. Ook gaan we interactief verkennen op welke manier verlies zich verpakt in overlevingsmechanismen, hoe je die leert herkennen en op welke manier deze gerelateerd zijn aan kwetsbaarheid van een revalidant. Jelle maakt tijdens deze workshop de vertaalslag door vanuit het perspectief van de revalidant zijn ervaringen te delen in zijn leven met terugkerende rouw en wat hierbij in de revalidatie voor hem helpend is (geweest).

In een eerdere workshop Rouw en Veerkracht (DCRM nov 2022) hebben we het thema levend verlies verkend aan de hand van het duale procesmodel. We voegen hier in de huidige workshop enkele dimensies aan toe. Daarnaast plaatsen we tijdens deze workshop verlieservaringen vanaf het moment van diagnose in de verdere levensloop van revalidanten. Deelnemers gaan ook zelf aan de slag met het verkennen van de relatie tussen overlevingsmechanismen van een revalidant met de onderliggende kwetsbaarheid.

AB2. Workshop Organization of and role of the rehabilitation physician in amputation rehabilitation within the Geriatric Rehabilitation

MD Evie Houet[1], MD Nathalie Benda[2], MD Ingrid Van Duursen[3], Koen Vullers[1], Sepholine Loman[6], MD Bert Kap[4], MD Frank Hamers[3], MD Marc Vd Vusse[5]
[1]Adelante, [2]Tolbrug, [3]St. Antonius Ziekenhuis Nieuwegein, [4]De Hoogstraat Revalidatie, [5]Laurentius Ziekenhuis, [6]Patients' Association “Korter maar Krachtig”

Session description including learning objective(s):
Interactive session with an overview of and discussion on organization and quality of amputation rehabilitation in the Geriatric Rehabilitation Care (GRZ). This is an important topic as, due to ageing of the population, the numbers of higher-aged amputees will increase. This could mean that the age limits within medical specialistic rehabilitation (MSR) will shift, blurring the boundaries between MSR and GRZ. This will also raise questions on the organization of care between rehabilitation physician and other health care specialist, such as specialist in geriatric medicine. Preparing this workshop, we noticed that there is little scientific data on this topic and a lot of variation in daily practice throughout various healthcare settings in the Netherlands.
This session will focus on examples from daily practice from different health care locations in the Netherlands and on a discussion on how to optimize this care. The perspectives of the rehabilitation physician, specialist in geriatric medicine, physical therapist en patients are discussed.

Learning objective: Obtaining insights how to optimize the organization of care for older patients with a lower limb amputation regardless of the setting of rehabilitation (GRZ and MSR).

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

Chairs: Marc vd Vusse, Rehabilitation Physician Laurentius Ziekenhuis Roermond, and Frank Hamers.Rehabilitation Physician St. Antonius Ziekenhuis Nieuwegein.

Presenters:
1. Nathalie Benda, Rehabilitation Physician Tolbrug location Uden, and Evie Houet-Löring, Rehabilitation Physician Adelante location Venlo.
Title: the role of the Rehabilitation Physician in patients with a lower limb amputation within the GRZ.
2. Ingrid van Duursen, Specialist in geriatric medicine Herstel Afdeling van Zorgspectrum, location St. Antonius Ziekenhuis Nieuwegein.
Title: Organization of rehabilitation after lower limb amputation within GRZ and the division of roles between the Specialist in geriatric medicine and the Rehabilitation Physician.
3. Koen Vullers, Physical Therapist, working in an outpatient MSR setting, who has worked within the Geriatric Rehabilitation in the past.
Title: Similarities and differences between working with patients with a lower limb amputation in both settings.
4. Sepholine Loman, chair of the Patients' Association “Korter maar Krachtig”
Title: what does the geriatric patient want? Which opinion does the patient association have on amputation rehabilitation within the GRZ? What do they notice, what experiences do members have?
5. Nathalie Benda, Rehabilitation Physician Tolbrug location Uden, and Evie Houet-Löring, Rehabilitation Physician Adelante location Venlo.
Case discussion on Auto Adaptive Knees (AAK) for geriatric patients.

Outline session
First, we will give an overview on how amputation rehabilitation care is organized in different Dutch care locations by presenting results of a questionnaire among the rehabilitation physicians who are

members of the national Workgroup for Amputation and Prosthetics (WAP). Then, an example on collaboration between rehabilitation physician and specialist in geriatric medicine in care for amputation patients will be illustrated, followed by a presentation from a physical therapist who will focus on similarities and differences between working with amputation patients in geriatric care and MSR. Furthermore, a representative of Korter maar Krachtig, will elaborate on their experiences in both settings. Finally, we present a case report on an auto-adaptive knee prosthesis in an elderly patient. We reserve enough time for discussion and case reports. To further improve interaction, the audience will be asked on their experiences/opinions through a live digital questionnaire.
This workshop aims to open a discussion how to optimize the organization of care for amputation patients regardless of the setting of rehabilitation (GRZ and MSR) and should contribute to the development of appropriate care ("passende zorg") for elderly amputees. This workshop provides an opportunity for a broad discussion between both WAP-members and non-members.

Parallel Session B

B3. Workshop: Academische werkplaatsen binnen de revalidatiegeneeskunde: Samen bouwen aan de hulpmiddelenzorg van de toekomst
B4. Minisymposium: Eigen regie in de revalidatiezorg
B5. Minisymposium: Person-oriented aftercare for post-COVID condition and the effectiveness of a biopsychosocial interdisciplinary rehabilitation treatment
B6. Mini-symposium: Aanhoudende klachten na licht traumatisch hoofd-/hersenletsel; nieuwste inzichten rondom behandeling
B7. Mini-symposium: Improved diagnostics through digital twins: neuromusculoskeletal modeling and simulations for clinical rehabilitation
B8. Mini-symposium: De beweegreis van de CVA patiënt

B3 Academische werkplaatsen binnen de revalidatiegeneeskunde: Samen bouwen aan de hulpmiddelenzorg van de toekomst

Roosmarijn Geerlings, Verena Schuurman[1], Dr. Jaap van Netten[1], Prof. Dr. Corry van der Sluis[1], Prof. Dr. Han Houdijk[2]
[1]Afdeling Revalidatiegeneeskunde, [2]Afdeling Bewegingswetenschappen

Sessie omschrijving
Binnen de revalidatiegeneeskunde zien we groeiende zorgbehoeften, toenemende complexiteit van vraagstukken en de groeiende noodzaak van een geïntegreerde, interdisciplinaire aanpak. Ook binnen de hulpmiddelenzorg kampen we met deze maatschappelijke veranderingen. Academische werkplaatsen zijn dé plek om op deze veranderingen in te spelen. Een academische werkplaats is een netwerk van partners uit praktijk, onderzoek, onderwijs en gebruikers van hulpmiddelen waarin gezamenlijk onderzoeksvragen worden opgehaald en aangepakt, en opgedane kennis wordt gedeeld en geïmplementeerd. Onze door ZonMw voor 6 jaar gefinancierde academische werkplaatsen, HOMELAND en de ProtheseAcademie, richten zich specifiek op mobiliteitshulpmiddelen binnen de revalidatiegeneeskunde. HOMELAND focust zich op het verbeteren van drukontlastende hulpmiddelen, zoals aangepast schoeisel, voor mensen met neuropathie. De ProtheseAcademie richt zich op het verbeteren van arm- en beenprothesegebruik in de thuissituatie. In deze workshop lichten we de organisatie en werkwijze van academische werkplaatsen toe, bespreken we de praktijkgerichte onderzoeken en de weg naar implementatie en laten we zien op welke wijze revalidatieartsen (en andere zorgprofessionals) profiteren van en een bijdrage kunnen leveren aan deze werkplaatsen.

Leerdoelen
Na afloop van de workshop:
- Hebben de deelnemers inzicht in de manier waarop academische werkplaatsen de revalidatiegeneeskundige hulpmiddelenzorg kunnen verbeteren
- Weten de deelnemers hoe academische werkplaatsen een model bieden om wetenschappelijk en praktijkgericht onderzoek uit te voeren en kennis te implementeren, waarin alle stakeholders nauw betrokken zijn.
- Hebben de deelnemers inzicht in hun bijdrage om bij te dragen aan de toekomst van betaalbare en toegankelijke hulpmiddelenzorg.
- Weten de deelnemers hoe zij kunnen participeren in deze academische werkplaatsen vanuit hun rol als zorgprofessional binnen de revalidatiegeneeskunde.

Voorzitters: V. Schuumans & R. Geerlings

Titels van de presentaties en sprekers:
1) De verkenning van HOMELAND (door R.F. Geerlings)

2) De verkenning van de ProtheseAcademie (door V. Schuurmans)
3) Oplossingsgericht denken over Maatschappelijke Casussen (door Dr. J.J. van Netten, Prof. Dr. S.A. Bus, Prof. Dr. C.K. van der Sluis, Prof. Dr. J.H.P Houdijk)
4) De rol van zorgprofessionals in academische werkplaatsen (door Dr. J.J. van Netten, Prof. Dr. S.A. Bus, Prof. Dr. C.K. van der Sluis, Prof. Dr. J.H.P Houdijk)
5) Van Standpunten tot Inzichten: Dynamische Dialoog en Heroverweging van Stellingen (door R.F. Geerlings & V. Schuurmans)

Samenvatting sessie per onderdeel
1 en 2) Korte presentatie over academische werkplaatsen HOMELAND en ProtheseAcademie met stellingen om maatschappelijke uitdagingen te duiden. Duur: 40 min
3) Discussie in groepjes: We dagen deelnemers uit om mee te denken over (maatschappelijke) casussen afkomstig uit praktijkgerichte projecten van onze academische werkplaatsen, met een focus op toekomstgerichte oplossingen en hun rol als zorgprofessional binnen de kennis- en onderzoeksinfrastructuur van een academische werkplaats. Duur: 20 min
4) Plenaire discussie: terugkoppeling over de discussie in groepjes en over de rol van zorgprofessionals binnen projecten van HOMELAND en ProtheseAcademie. Duur: 20 min.
5) Afsluiting: Terugkomen op de stellingen (en bekijken of de deelnemers na de workshop andere meningen hebben dan aan het begin van de workshop). Duur: 10 min

Wij zijn ons bewust van het maximum van vijf sprekers. Graag dienen wij een verzoek in voor een zesde spreker, gezien onze samenwerking vanuit twee academische werkplaatsen:
Prof. Dr. S.A. Bus, projectleider Academische Werkplaats HOMELAND, Afdeling Revalidatiegeneeskunde, Amsterdam UMC

B4 Eigen regie in de revalidatiezorg

Msc Bianca Mourits[1], Prof Anne Visser-Meily[1,3], dr. Ton Satink[2], dr. Joris de Graaf[1,3], MSc Sheila Gerritsen[4]
[1]Kenniscentrum Revalidatiegeneeskunde Utrecht, [2]HAN University of Applied Sciences, [3]UMC Utrecht , [4]De Hoogstraat Revalidatie

Sessiebeschrijving inclusief leerdoel(en)

"In de komende decennia ontstaat een toenemende behoefte aan zorg voor mensen met een chronische aandoening. Revalidatiegeneeskunde beoogt het verbeteren van functies en vaardigheden, het optimaliseren van zelfredzaamheid, eigen regie en participatie van patiënten met beperkingen veroorzaakt door een aangeboren of verworven aandoening. De revalidatiegeneeskunde zal actief moeten bijdragen aan het verbeteren van de zorg voor de revalidatie patiënt waarbij eigen regie en participatie centraal staat."

Bovenstaande is de visie van de VRA geschreven in de position paper revalidatiegeneeskunde in 2015. Maar hoe staat het nu met het bevorderen van eigen regie van de revalidant de afgelopen jaren? En is eigen regie dan hetzelfde als zelfmanagement, een begripsverwarring die regelmatig voorkomt. Welke definities hanteren we in de revalidatie? Staat eigen regie nu centraal tijdens het revalidatietraject van iedere revalidant? En draagt het bij aan het verbeteren van de zorg?
Met dit mini-symposium willen wij inzicht geven in het begrip eigen regie, hoe we eigen regie kunnen meten en wat eigen regie betekent voor een revalidant. Hiermee hopen we de aandacht voor eigen regie in de revalidatiezorg te vergroten.

- Voorzitters/presentatoren met titels van de presentaties en sprekers

Chairpresenter: Prof. dr. Anne Visser-Meily, hoogleraar Revalidatiegeneeskunde, revalidatiearts UMC Utrecht en hoofd Kenniscentrum Revalidatiegeneeskunde Utrecht

Sprekers:
- dr. Ton Satink, associate lector Neurorevalidatie- Eigen regie en Participatie, HAN University of Applied Sciences
- Bianca Mourits (MSc), PhD student, Kenniscentrum Revalidatiegeneeskunde Utrecht
- Sheila Gerritsen, maatschappelijk werker, De Hoogstraat Revalidatie

Programma:

- Introductie en interactie met het publiek: Wat is eigen regie? Hoe wordt het bevorderen van eigen regie toegepast in de zorg? Draagt het bij aan het verbeteren van de zorg? - 10 min

- Theorie begrip eigen regie: Model begrip eigen regie, attitude zorgverlener en samen regie - Ton Satink - 25 min

- Het meten van eigen regie in de revalidatie: Ontwikkeling en uitleg van de Self Regulation Assessment (SeRA), meetinstrument van eigen regie in de revalidatie, en de ervaringen van zorgverleners met het gebruik van het instrument - Bianca Mourits - 25 min

- Bevorderen van eigen regie van revalidanten d.m.v. een training: Uitleg van een eigen regie training bij De Hoogstraat Revalidatie bij revalidanten met een dwarslaesie - Sheila Gerritsen - 25 min

B5 Person-oriented aftercare for post-COVID condition and the effectiveness of a biopsychosocial interdisciplinary rehabilitation treatment

Md Carlijn Wiertz[1,2], PhD Thijs van Meulenbroek[1,2], MD, PhD Bea Hemmen[1,2,3], Prof, MD Jeanine Verbunt[1,2]
[1]Adelante, [2]Department of Rehabilitation Medicine Research School CAPHRI, Maastricht University, [3]Afdeling revalidatiegeneeskunde, Zuyderland Ziekenhuis

Abstract:
Patients with post-COVID-19 condition (PCC) experience a wide range of complaints, sometimes with high levels of disability in daily activities. Depending on health-related complaints, consequences on daily life activities and the appearance of maintaining factors it is important to assess the specific needs of each individual patient. A regional network of healthcare providers with a special interest and expertise in the treatment of patients with PCC, is being established in Limburg. We have engaged focus groups with patients and healthcare providers to gain more information on their experience regarding health-related PCC complaints, consequences on activities and participation and PCC interdisciplinary rehabilitation programs. Furthermore, a person-centered biopsychosocial, tailored interdisciplinary rehabilitation program, according to patient needs and expert opinions was developed aimed at optimizing patient's participation in society and quality of life.

Learning objectives:
- Know how the ziektelastmeter (ZLM) can be used to determine the right aftercare for patients with PCC.
- Increase knowledge about regional network formation for PCC.
- To gain more information on patient and healthcare professional experiences regarding their experience with the current PCC rehabilitation programs in outpatient rehabilitation treatment in secondary care.
- Increase knowledge of how to use an interdisciplinary patient education in rehabilitation of PCC patients.
- Presenting the first results of a person-centered biopsychosocial, tailored interdisciplinary rehabilitation program for PCC in secondary care.

Speakers:
- PhD Thijs van Meulenbroek, physiotherapist Adelante Centre of Expertise in Rehabilitation and Audiology, Maastricht & post doc, Maastricht University, the Netherlands
- MD PhD Jako Burgers, Extraordinary Professor, Family Medicine Maastricht University, and general practitioner
- MD PhD Jeanine Verbunt, professor rehabilitation medicine Maastricht University, and rehabilitation physician Adelante Centre of Expertise in Rehabilitation and Audiology, Maastricht, the Netherlands
- MD Carlijn Wiertz, rehabilitation physician Adelante Centre of Expertise in Rehabilitation and Audiology, Hoensbroek & PhD student, Maastricht University, the Netherlands.

Program overview:
- Person-oriented, integrated aftercare COVID-19 in Limburg and the use of the ziektelastmeter for PCC (20min).
- Interdisciplinary rehabilitation treatment for post-COVID condition: insights from qualitative online focus groups interviews (15min).
- Effectiveness of biopsychosocial interdisciplinary rehabilitation treatment of post-COVID condition, in secondary care (20min).
- Interdisciplinary patient education for post-COVID condition, in outpatient rehabilitation treatment in secondary care (20min).
- Panel discussion (15min).

B6 Aanhoudende klachten na licht traumatisch hoofd-/hersenletsel; nieuwste inzichten rondom behandeling

Drs Elbrich Jagersma[1], Prof. Dr. C.A.M. (Coen) van Bennekom[2,3], Dr. M. E. (Marthe) Ford[2,4], Dr. M. E. (Myrthe) Scheenen[5], Dr. M. (Marsh) Konigs[6,7]
[1]Revalidatiecentrum Basalt, locatie Delft, [2]Heliomare, [3]Public & Occupational Health, Amsterdam UMC, [4]Brain & Cognition, University of Amsterdam, [5]afdeling Neurologie UMCG, [6]Emma's Childrens's Hospital Amsterdam UMC, location University of Amsterdam, [7]Follow-ME program & Emma Neuroscience Group

Dit minisymposium besteedt aandacht aan de nieuwste inzichten rondom licht traumatisch hoofd-/hersenletsel; met het bespreken van de richtlijn 'Aanhoudende klachten na Licht Traumatisch Hoofd-/Hersenletsel (LTH)'; de nieuwste inzichten rondom de invloed van persoonlijkheidsfactoren; en het (nationale) onderzoek dat wordt gedaan naar de effecten van Exposure behandeling en Cognitive FX.

De patiënten met aanhoudende klachten na LTH betreft een grote groep, die vaak laat in het (para)medisch circuit verschijnt. De klachten zijn vaak moeilijk te beïnvloeden, de literatuur is niet even eenduidig, zowel over de etiologie als behandeling. De huidige behandeling is vooralsnog vooral practise-based en regelmatig buiten de reguliere zorg. Kortom, zowel de patiënt, als (para)medicus is veelal zoekende.

Goed nieuws is dat het veld volop in beweging is; waar voorheen adviezen vooral gericht waren op het nemen van voldoende rust en dempen van prikkels, wordt binnen de nieuwste behandelmethodes juist vrijwel het tegenovergestelde geadviseerd. Steeds duidelijker daarnaast wordt het profiel van symptoomclusters in de diagnostiek en de invloed van persoonlijkheidsfactoren.

In april 2024 is de 'Richtlijn aanhoudende klachten na Licht Traumatisch Hoofd-/Hersenletsel' op initiatief van de VRA gepubliceerd, waarin met de huidige evidence rondom de diagnostiek en behandeling richting wordt gegeven aan het beleid rondom deze patiënt.
Een mooi moment om tijdens dit minisymposium aandacht te besteden aan alle nieuwe ontwikkelingen!

Leerdoelen:
Na afloop heeft/is de deelnemer:
- Kennisgenomen van de richtlijn 'Aanhoudende klachten na Licht Traumatisch Hoofd-/Hersenletsel'
- Kennis van het belang van persoonlijkheidsfactoren in de behandeling
- Op de hoogte van exposure bij licht THL
- Op de hoogte van uitkomsten Cognitive FX onderzoek

Voorzitter: Drs. E. (Elbrich) Jagersma, revalidatiearts Basalt Delft.

Sprekers:
-Prof. Dr. C.A.M. (Coen) van Bennekom, revalidatiearts, Heliomare, Wijk aan Zee. Bijzonder Hoogleraar Revalidatie en Arbeid, Public & Occupational Health, Amsterdam UMC, Amsterdam
-Dr. M. E. (Marthe) Ford, Klinisch neuropsycholoog, Heliomare, Wijk aan Zee. Universitair Docent Brain & Cognition, UvA, Amsterdam.
-Dr. M. E. (Myrthe) Scheenen, GZ-psycholoog i.o. Klinisch Neuropsycholoog, afdeling Neurologie UMCG

-Dr. M (Marsh) Konigs, neurowetenschapper. Universitair docent. Principal Investigator. Emma's Childrens's Hospital Amsterdam UMC, location University of Amsterdam, Follow-ME program & Emma Neuroscience Group, Amsterdam.

Indeling programma

Inleiding voorzitter (5 min)

1. 'Richtlijn aanhoudende klachten na Licht Traumatisch Hoofd-/Hersenletsel'

Coen van Bennekom – 15 min

Tijdens deze presentatie zal een overzicht worden gegeven van de 'Richtlijn Aanhoudende klachten na Licht Traumatisch Hoofd/Hersenletsel', waarbij de focus zal liggen op de diagnostiek/definitie van de patiëntengroep.

2. Invloed van persoonlijkheidsfactoren; welke patiënten zijn 'at risk' na LTSH

Myrthe Scheenen – 15 min

Tijdens deze presentatie zullen de recente resultaten van de UPFRONT-studie worden gepresenteerd en zal worden ingegaan op de vraag welke door interventies te beïnvloeden factoren het herstel van aanhoudende klachten na licht THL kunnen bevorderen

3. Effect van intensieve Exposure interventie

Marthe Ford – 15 min

Deze presentatie zal de eerste veelbelovende resultaten van deze nieuwe ontwikkelde interventie toelichten, gebaseerd op het fear-avoidance model. Er vindt momenteel een interventiestudie plaats.

4. Cognitive FX

Marsh Konigs – 15 min

Cognitive FX is een intensieve behandelmethode in Utah, welke veel publiciteit heeft genoten. In deze presentatie staat het onderzoek dat door onder leiding van Marsh Konigs wordt verricht in Nederland naar het effect van de interventie centraal, en zullen de resultaten worden besproken.

5. De ideale behandeling voor mensen met licht THL - 20 min

Een schets van de aanpak binnen revalidatie zal gepresenteerd worden aan de hand waarvan een discussie gevoerd zal worden

Elke presentatie zal maximaal 15 minuten duren, zodat er na iedere presentatie voldoende tijd en ruimte zal zijn voor vragen/discussie. Onderdeel 5 zal interactief zijn, waarbij de discussie met de aanwezigen gevoerd zal worden aan de hand van stelling

B7 Improved diagnostics through digital twins: neuromusculoskeletal modeling and simulations for clinical rehabilitation

Phd Tom Buurke[1], PhD Mohamed Irfan Refai[2], PhD Christian Greve[1,3], PhD Kirsten Veerkamp[4], PhD Eline van der Kruk[5]
[1]University of Groningen, University Medical Center Groningen, Department of Human Movement Sciences, [2]Neuromuscular Robotics, Department of Biomechanical Engineering, University of Twente, [3]University of Groningen, University Medical Center Groningen, Department of Rehabilitation Medicine, [4]Vrije Universiteit Amsterdam, Faculty of Behavioural and Movement Sciences, [5]Department of Biomechanical Engineering, Faculty of Mechanical Engineering, Delft University of Technology
Session description including learning objective(s):
Technological advancements in the last decade have rapidly improved the accuracy and speed of musculoskeletal modeling and computer simulations of human movement. These allow us to generate digital twins of a patient, enabling a personalized understanding of the underlying neuromechanics that result in impaired movement. Scientific studies have shown that these twins can provide clinicians insight into the underlying pathology of movement impairments. Furthermore, it allows for the in silico prediction of therapy outcome, surgery and other treatments, improving efficiency and efficacy of rehabilitation care. As such, modeling can support clinical decision making processes by evaluating the role of specific neuromusculoskeletal impairments in a patient and the effects of potential interventions. However, there is a gap between clinical implementation and current possibilities in neuromusculoskeletal modeling. In this mini-symposium we would like to close this gap and engage in an interactive discussion with rehabilitation professionals about the potential of digital twins for future rehabilitation, and to gain insight into which knowledge or technologies would enhance current clinical practice. As such, in this session the audience will learn about the fundamental principles of musculoskeletal modeling and simulations, its potential applications in rehabilitation, and reflect on possible key future research themes.

Chair(s)/presenters with titles of the presentations and speakers:
Chair/Presenter 1: dr. Tom J.W. Buurke
Title: The effect of muscle weakness on walking energetics and symmetry after stroke: Predictive simulations to support the diagnosis of gait impairments.

Presenter 2: dr. Mohamed Irfan Refai
Title: Towards safer workplaces: Digital Twins for modeling lower back loading during daily life.

Presenter 3: dr. Christian Greve
Title: Enhancing hamstring muscle-tendon diagnostics in patients with a central neurological lesion: Integrating functional exercises and musculoskeletal modeling.

Presenter 4: dr. Kirsten Veerkamp
Title: Unraveling how impairments cause gait deviations in children with cerebral palsy: The power of computer simulations.

Presenter 5: dr. Eline van der Kruk
Title: Why older adults move differently: Exploring compensation strategies in older adults through predictive simulations.

Outline session:
0:00-00:05: Opening (chair)
Introduction into modeling and simulations. Questions will be introduced to the audience to guide the closing discussion.

00:05-00:20: Presentation dr. Refai + questions
State-of-the-art modeling for simulating lower back loading during lifting and how this approach can be applied to estimate personalized compressive loads during different lifting styles, progression of muscle fatigue, and assistive system design, including a back-support exosuit demonstration.

00:20-00:35: Case study dr. Greve + questions
How musculoskeletal modeling techniques can support clinical decision making processes in patients with hamstring muscle-tendon length deficits and/or spasticity.

00:35-00:50: Case study dr. Veerkamp + questions
The potential of musculoskeletal models to aid diagnostics of the cause of gait deviations in cerebral palsy.

00:50-01:05: Presentation dr. vd Kruk + questions
Predictive simulations of compensation strategies in older adults.

01:05-01:15: Presentation dr. Buurke
Predictive simulations of hemiparetic walking to gain insight into gait asymmetry and energetics post-stroke.

01:15-01:25: Topic-based interactive discussion with the audience
What does the audience see as the future potential of these types of models for clinical practice? What would the audience like to receive from these models in the future?

01:25-01:30: Closing (chair)

B8 De beweegreis van de CVA patiënt

Drs. Desi Stokman-Meiland[1,2], Dr. Leonie Krops[2], Drs. Camille Biemans[3,4], Prof. Dr. Rienk Dekker[1,2]
[1]Afdeling Innovation, Quality + Research (IQ+T), Basalt, [2]Afdeling Revalidatiegeneeskunde, Centrum voor Revalidatie UMCG, [3]Afdeling revalidatie, Fysiotherapiewetenschap & Sport, UMC Utrecht, [4]Empowering Healthy Behaviour, Fontys Paramedisch

Sessie beschrijving

Het belang van een gezonde leefstijl en gezond beweeggedrag voor CVA patiënten krijgt steeds meer aandacht binnen de revalidatiegeneeskunde. Er zijn diverse initiatieven zowel binnen het ziekenhuis, als in revalidatiecentra en in samenwerking met de 1e lijn. Het vergroten van de impact van beweeggedragsinterventies en het ondersteunen van de CVA patiënt gedurende de gehele 'beweegreis', vraagt om afstemming en samenwerking. Zowel binnen diverse onderzoeksgroepen als in samenwerking met de patiënt.

De onderzoeksgroepen van het UMCG, Basalt en het UMCU hebben de handen ineen geslagen. In het mini-symposium wordt toegelicht welke onderzoeken er momenteel gedaan worden naar gezond beweeggedrag. De beweegreis van de patiënt, van ziekenhuis naar revalidatiecentrum naar 1e lijn, staat hierbij centraal. De onderzoekers zullen hun werk en resultaten presenteren, en een aantal CVA-patiënten zullen hun ervaringen delen.

Leeruitkomsten

Na afloop, kent de deelnemer:

- Lopende onderzoeken op het gebied van gezond beweeggedrag en reeds bekende resultaten
- Ervaringen van patiënten met de diverse onderzoeken in de dagelijkse praktijk
- Inspiratie om zelf met gezond beweeggedrag aan de slag te gaan

Presentatoren en titels van de presentaties

Opening en welkom door de voorzitter, prof. dr. Rienk Dekker

1. Leefstijl in het ziekenhuis: hoe pas je het toe in de spreekkamer? Dr. Leonie Krops (UMCG)
2. Een beweegadvies op basis van een persoonlijk beweeg- en gedragsprofiel: resultaten van een fieldtest in een poliklinische revalidatiesetting. Drs. Desi Stokman-Meiland (Basalt)
3. De RISE interventie: verbeteren van het 24-uurs beweeggedrag door coaching van een eerstelijns fysiotherapeut. Drs. Camille Biemans (UMCU)
4. Plenaire discussie

Samenvatting sessie

In het Integraal Zorg Akkoord staat dat per 1 januari 2025 leefstijl onderdeel moet zijn van de reguliere zorg. De vraag is hoe dat in de praktijk te realiseren. In dit mini-symposium wordt aan de hand van de patiëntreis toegelicht hoe leefstijl kan worden toegepast als onderdeel van de reguliere (revalidatie)zorg. De CVA-patiënt wordt als voorbeeld genomen.

In een korte inleiding wordt de achtergrond en bewijskracht van leefstijl in de zorg toegelicht. Vervolgens worden in drie stappen van de patiëntreis, namelijk het ziekenhuis, het revalidatiecentrum en de 1e lijn, mogelijkheden voor het toepassen van leefstijl gepresenteerd. Voor het ziekenhuis wordt een wetenschappelijk onderbouwde manier toegelicht om, tijdens een regulier consult, leefstijl te bespreken en patiënten zo mogelijk te verwijzen voor een leefstijladvies en -begeleiding. Voor de poliklinische revalidatiesetting worden de resultaten van het gebruik van een persoonlijk beweeg- en gedragsprofiel (field-test) gepresenteerd en een CVA patiënt zal zijn ervaringen delen. Tenslotte bespreken we de eerstelijns RISE interventie, waarin een gedragsinterventie zorgt voor een betere balans in 24-uurs beweeggedrag. Een deelnemer aan de RISE interventie zal zijn ervaringen delen. Afsluitend is er ruimte voor discussie en het uitwisselen van ideeën om revalidanten te ondersteunen in gezond beweeggedrag gedurende hun hele ‘beweegreis’.

Parallel Session C

C1 Workshop: Preventie: je kan er niet omheen, dus wandel met ons mee
C2 Workshop Samen denken en doen: de kracht van patiëntenparticipatie in revalidatieonderzoek
C3 Mini-symposium: Neuropsychiatrie: het kind van de rekening of kans voor de revalidatie?
C4. Mini-symposium: Progressive gait disorders in hereditary Spastic Paraparese (HSP); complexity of clinical decisionmaking
C5 Mini-symposium: Progressive gait disorders in Hereditary Spastic Paraparese (HSP); complexity of clinical decisionmaking
C6 Mini-symposium: De toepassing van draagbare technologie in de thuisrevalidatie na een CVA: “van prototype naar impact”.
C7. Mini-symposium: Personalisation of lower limb assistive devices; how Human-in-the-loop optimization can revolutionize rehabilitation care.
C8. Mini-symposium: Diagnostiek en behandeling van het lopen bij een incomplete dwarslaesie; laatste inzichten uit onderzoek

C1 Workshop: Preventie: je kan er niet omheen, dus wandel met ons mee

Dr. Janneke Haisma[1], Dr. Annette van Kuijk[2], Dr. Rita van den Berg-Emons[3], Drs. Jasper Faber[4], Drs. Martin Fluit[5], Dr. Adrie Bouma[6]
[1]Reade, [2]Tolbrug, Jeroen Bosch Ziekenhuis, [3]Erasmus MC | Revalidatiegeneeskunde, [4]TU Delft | Industrial Design Engineering, [5]Stichting Special Heroes Nederland, [6]Afdeling Strategie en Beleid, UMCG

Maatschappelijke veranderingen zoals vergrijzing en personeelstekort maken de huidige organisatie van de medische zorg onhoudbaar, en daarom moet meer worden ingezet op preventie. Rijk, gemeenten, zorginstellingen, verzekeraars en ook het bedrijfsleven moeten samenwerken aan een gezonde samenleving ('health in all policies'). Daarnaast vraagt de groeiende gezondheidskloof om effectieve interventies die juist de meest kwetsbare groepen bereiken. De IZA stelt dat uiterlijk 1 januari 2025 professionals uit de gemeentelijke domeinen en zorgprofessionals in de eerste, tweede en derde lijn moeten samenwerken in een (regionale) preventie infrastructuur (IZA, september 2022). De inzet hiervan omvat o.a. screening op leefstijl en verwijzen naar effectieve leefstijlinterventies. En hier ligt dus de kans en tegelijkertijd noodzaak voor revalidatie-instellingen: onze patiënten hebben een verhoogd risico op een ongezonde leefstijl, en leefstijl behoort een structureel onderdeel te zijn van hun (revalidatie)behandeling.

Tijdens deze workshop zullen stakeholders m.b.t. preventie en gezonde leefstijl pitches geven waarin ze vertellen hoe zij zouden kunnen bijdragen aan de eerdergenoemde preventie infrastructuur. De pitches bieden u handvaten: extra verdieping voor degenen die al aandacht besteden aan leefstijl, en juist praktische adviezen voor de starters om er per 2025 écht mee aan de slag te gaan.

Na de pitches volgt het actieve deel van de workshop: de wandeling. Tijdens een groepswandeling gaat u onder leiding van een moderator met elkaar in gesprek. Welke inspiratie heeft u opgedaan tijdens de pitches waar u op korte termijn mee aan de slag wil op uw afdeling? Hoe weten we welke elementen in een preventie infrastructuur passen, en hoe effectief ze zijn? Welke kennis of tools heeft u daarvoor nodig? Wat zou nog verder moeten worden onderzocht?

Leerdoel: Deelnemers leren over bestaande preventie initiatieven en doen inspiratie op hoe zelf een bijdrage te leveren aan een preventie infrastructuur. Al wandelend delen zij ideeën over hoe morgen van start te gaan, en bespreken ze ook knelpunten of belangrijke vragen die beantwoord dienen te worden voor het implementeren van een effectief leefstijl beleid.

Leden van de Werkgroep VRA Bewegen en Sport (WVBS) zullen de pitches introduceren en moderator zijn tijdens de wandeling.

Pitches door:

- Dr. A.A. (Annette) van Kuijk, Revalidatiearts en medisch directeur Tolbrug specialistische revalidatie, Jeroen Bosch Ziekenhuis, Den Bosch – Samen in beweging voor een gezonde regio
- Dr. H.J.G. (Rita) van den Berg-Emons, Universitair Hoofddocent Health-related physical fitness and lifestyle', Revalidatiegeneeskunde Erasmus MC – Leefstijlverandering na een dwarslaesie
- Ir. M. (Marieke) Nijmeijer, Onderzoeker Lectoraat Kracht van Sport & Bewegen, Inholland – De ontwikkeling van een transmuraal leefstijlcoachingspad voor mensen met een dwarslaesie, caudalaesie of spina bifida.
- Drs. M. (Martin) Fluit, Programma coördinator zorg, Stichting Special Heroes Nederland – Bouwen aan gezonde gewoontes
- Drs. P. (Petra) Fieten, verpleegkundig leefstijlconsulent afdeling Heamatologie, UMCG, Groningen - Leefstijl in het UMCG: Groninger Leefstijl Interventie Model (GLIM)

C2 Workshop Samen denken en doen: de kracht van patiëntenparticipatie in revalidatieonderzoek!

Dr. Nicole Voet[1,2], Dr. Diana Oosterveer[3], Drs. Vera Verhage[1], Prof. Dr. Baziel van Engelen[2], Dr. Janne Bolt[4], Dr. Johan Lim[5]
[1]Klimmendaal, [2]Radboudumc, [3]Basalt, [4]Heliomare, [5]Amsterdamumc
Patiënten ervaren in hun dagelijkse praktijk direct de impact van onbeantwoorde onderzoeksvragen. Steeds meer wordt benadrukt hoe belangrijk het is om patiënten niet alleen als deelnemer, maar ook als partner in onderzoek te betrekken. Hierdoor kan een onderzoek opgezet worden dat aansluit bij hun behoeften en (on)mogelijkheden binnen de revalidatiezorg. Het perspectief van de patiënt staat hierbij centraal. Deze workshop bevat bijdragen van sprekers die toonaangevend zijn op het gebied van patiëntenparticipatie in

revalidatieonderzoek en hun krachten bundelen. De workshop is een vervolg op de succesvolle editie tijdens het DCRM in 2023.

Het betrekken van patiënten in alle fasen van het onderzoekstraject, van de opzet tot de implementatie van de resultaten, zorgt niet alleen voor wetenschappelijk en maatschappelijk relevant onderzoek, maar maakt ook daadwerkelijk verschil in de kwaliteit van leven van patiënten. Patiëntenparticipatie in onderzoek is meer dan alleen patiënten uitnodigen om mee te denken; hun stem en invloed kan op meerdere manier vorm gegeven worden. Vaak worden patiënten pas laat betrokken bij onderzoek, wat veroorzaakt kan worden door een gebrek aan kennis of initiatief bij professionals, maar ook door een tekort aan voorbeelden.

In deze workshop presenteren we diverse casestudies van patiëntenparticipatie in wetenschappelijk onderzoek en gaan we gezamenlijk aan de slag met praktijkgerichte vragen. Denk aan: waar vind ik patiënten die kunnen meedenken? Hoe vraag ik patiënten om hun perspectief te delen? Hoe zorgen we ervoor dat patiënten vanuit een lagere sociaaleconomische klasse ook betrokken worden? Welke barrières ervaren patiënten bij het meedenken in onderzoek en hoe kunnen we deze wegnemen?

Voorzitter:
Diana Oosterveer, revalidatiearts en senior onderzoeker Basalt

Sprekers:
Baziel van Engelen, emeritus hoogleraar neurologie Radboudumc
Vera Verhage, patiëntenambassadeur wetenschap revalidatiecentrum Klimmendaal
Nicole Voet, revalidatiearts en senior onderzoeker Klimmendaal en Radboudumc
Janne Bolt, revalidatiearts in opleiding en onderzoeker Heliomare
Johan Lim, revalidatiearts in opleiding en onderzoeker Amsterdamumc

Samenvatting sessie:
1. Introductie door Diana Oosterveer (5 minuten)
Van wie is het onderzoek? Door neuroloog professor Baziel van Engelen (25 minuten)
2. De spierenraad: de opzet en uitrol van het patiëntenpanel binnen de onderzoekslijn “ Spieren in Beweging” van Klimmendaal door Vera Verhage en Nicole Voet (10 minuten)
3. Samenwerken met patiënten, hoe dan? Door early career onderzoekers en revalidatieartsen in opleiding Janne Bolt en Johan Lim (15 minuten)
4. Uiteen in groepen, begeleid door Baziel van Engelen, Diana Oosterveer, Vera Verhage, Nicole Voet, Janne Bolt en Johan Lim. In kleine groepen zal gewerkt worden aan een praktijkvraag. Wij zullen tijdens het DCRM aanwezige patiënten vragen zoveel als mogelijk aan te sluiten bij deze workshop, zodat het een co-creatie wordt (20 minuten)
5. Plenaire terugkoppeling en verzamelen van take home messages. (15 minuten)

Alle aanwezigen zullen een symbolische "goodie bag" naar huis meenemen vol kennis en inspiratie om aan de slag te gaan met patiëntenparticipatie!

Reviews van patiënten, als gelijkwaardige partner, betrokken in ons onderzoek:

" Is het niet voor mezelf, dan is het wel een ander."

" Ja, echt die relevantie van onderzoek. En dat je dan ook echt ziet van; er gebeurt ook wat mee, en ... dat leidt ook tot verbeteringen van behandelingen. "

” Nu heb ik ook weer een verhaal bij de koffie. Ik doe er weer toe!”

C3 Mini-sympsoium: Neuropsychiatrie: het kind van de rekening of kans voor de revalidatie?

Dr Paulien Goossens[1,2], Dr Mascha Kamphuis, Drs Ineke Kortland[3,4], Dr Boudewijn Bus[5]
[1]Basalt, [2]Medisch Centrum Haaglanden, [3]Tolbrug, [4]Jeroen Bosch Ziekenhuis, [5]GGZ Oost Brabant, Huize Padua

Korte samenvatting:
Ons zorgsysteem kent twee smaken. Er is een psychiatrische aandoening óf er is hersenletsel. Hierdoor voelt (bijna) niemand zich verantwoordelijk voor patiënten met hersenletsel en neuropsychiatrische gevolgen. Recent sloten meerdere klinieken met neuropsychiatrische expertise zelfs hun deuren of verminderden hun capaciteit. Deze maatschappelijke verandering maakt het steeds lastiger om de neuropsychiatrische kennis in hersenletsel-zorgketens te borgen. In de zorg komen patienten met ernstige neuropsychiatrische problemen vaker dan voorheen naar revalidatiecentra, terwijl er voor revalidatieartsen steeds minder mogelijkheid tot consultatie van een neuropsychiater beschikbaar is. Daarnaast constateren we dat er in Nederland ook voor mensen met lichte neuropsychiatrische gevolgen van hersenletsel weinig expertise voor handen lijkt. In de ons omringende landen wordt bijvoorbeeld veel vaker medicatie voorgeschreven bij verschijnselen van overprikkeling of vermoeidheid. Wat is daarvoor eigenlijk de evidence? En wat missen we in Nederland? Welke rol kan de revalidatiegeneeskunde hierin nemen, ligt hier een kans?

Leerdoelen:
Na afloop van dit minisymposium zijn de deelnemers:
- op de hoogte van de maatschappelijke ontwikkelingen op het gebied van neuropsychiatrische zorg in Nederland.
- zich bewust van de noodzaak van kennis over neuropsychiatrische gevolgen binnen de revalidatiegeneeskundige behandeling.
- geïnformeerd over de beschikbare evidence voor interventies mbt enkele veelvoorkomende neuropsychiatrische verschijnselen.

Presentatoren en titels presentaties:
Paulien Goossens (voorzitter van het minisymposium), 10 minuten
Neuropsychiatrie in Nederland, een korte situatieschets.
Mascha Kamphuis, 20 minuten
De meerwaarde van neuropsychiatrische kennis vanuit patiëntpersepctief.
Boudewijn Bus, 20 minuten
De evidence voor neuropsychiatrische kennis bij mensen met hersenletsel
Boudewijn Bus, Mascha Kamphuis en Ineke Kortland: interactieve discussie met deelnemers over gewenste neuropsychiatrische expertise en kansen voor de revalidatiegeneeskunde.
30 minuten discussie aan de hand van stellingen

Outline van de sessie:
In dit minisymposium bespreken we hoe het komt dat niemand zich verantwoordelijk lijkt te voelen voor patiënten met neuropsychiatrische problematiek. We hebben het over de noodzaak van neuropsychiatrische kennis binnen de revalidatiegeneeskunde vanuit patiëntenperspectief. De evidence voor neuropsychiatrische interventies wordt besproken.

Vervolgens exploreren sprekers en deelnemers aan het minisyposium het huidige neuropsychiatrische zorglandschap en de kansen die dit biedt voor de revalidatiegeneeskunde.

Toegevoegde waarde voor patiënten:
Voor patiënten met neuropsychiatrische gevolgen van hersenletsel is gerichte expertise ook nu al slecht toegankelijk en deze toegankelijkheid dreigt verder te verslechteren. Patiënten met ernstige gedragsproblemen na hersenletsel vormen een stevige belasting voor mantelzorgers, zoeken versnipperd hun zorg, hebben een verhoogde kans op suïcide, kunnen zich agressief gedragen en vormen een grote uitdaging voor de maatschappelijke dienstverlening, waaronder politie en brandweer. Ook patiënten met 'lichte' neuropsychiatrische gevolgen worden vaak niet goed herkend en behandeld, waardoor zij niet tot optimale participatie komen. Verbetering van deze situatie is dringend gewenst. In dit minisymposium vragen we aandacht voor deze materie en denken we na hoe we vanuit de revalidatiegeneeskunde een bijdrage kunnen leveren aan deze problematiek.

C4 Mini-symposium: Progressive gait disorders in Hereditary Spastic Paraparese (HSP); complexity of clinical decisionmaking

Dr Marc Nederhand[1,2], Prof dr Jeroen Vermeulen[3], Drs Meagen Renskers[1,4], Dr Elgun Zeegers[5]
[1]Roessingh, Centre for Rehabilitation, [2]Roessingh, Research and Development, [3]University Medical Centre (MUMC) , [4]Ziekenhuis Groep Twente (ZGT) , [5]Medisch Spectrum Twente (MST)

Hereditary spastic paraplegia (HSP) designates a heterogeneous group of genetic disorders. Genetic testing is not always possible, and both the clinical status and the patients' history may not always be sufficient to establish the diagnosis. In its pure form, HSP leads to progressive spasticity and weakness in the lower limbs resulting in various gait abnormalities. Due to the progressive nature of the clinical symptoms in HSP, these patients are typically treated differently to patients with cerebral palsy (CP). This symposium addresses the progressive nature of the disease and the identification of pathology related gait patterns that may help us to classify specific gait patterns and indicate appropriate treatment.
The symposium will start with a framework how to address the complexity of clinical decision making in progressive gait disorders, stressing the necessity to monitor disease progression and the resulting treatment strategy. This will be followed by an overview of the wide spectrum of underlying neural pathology in the different HSP subtypes and its effects on gait abnormalities. Then, the first results of a recent study that aims at identifying specific gait patterns in HSP is presented. A newly developed classification scale will be proposed, using standardized visual gait assessment with the goal to guide treatment decisions. Finally, this session will close with a presentation focusing on the role of surgical treatment for the different gait abnormalities in HSP

Learning objectives:
1) Acquire knowledge about the progressive nature of the gait abnormalities in HSP
2) Understand the complexity of clinical decision making in treatment of gait abnormalities in HSP.
3) Insight in the validity and usability of a newly developed gait scale in HSP.

Outline session:
Chair: MJ Nederhand, MD, PhD.

Presenter 1: MJ Nederhand, MD, PhD - Complexity in clinical decision making in progressive gait disorders

Presenter 2: R.J. Vermeulen, MD, PhD -Neurological manifestations of Hereditary Spastic Paraplegia (HSP)

Presenter 3: M Renskers, MD - Identification of specific gait patterns in Hereditary Spastic Paraplegia (HSP) using visual gait assessment as a guide for treatment decisions

Presenter 4: ACM Zeegers, MD -Surgical options in gait abnormalities in Hereditary Spastic Paraplegia (HSP)

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 Mini-symposium: De toepassing van draagbare technologie in de thuisrevalidatie na een CVA: “van prototype naar impact”.

PhD Hans Bussmann[1], Marc Evers[2], Lex van Gelder, MSc Nienja Langerak[1], ir. Coen Lauwerijssen[3], PhD Jetty van Ginkel[4]
[1]Erasmus MC, [2]Rijndam Revalidatie, [3]2M Engineering, [4]CareTech

- Sessie omschrijving

Draagbare technologie (“wearables”) wordt toenemend gebruikt in het dagelijkse leven. Denk daarbij aan smartphones, smartwatches en allerlei andere technologie die het beweeggedrag van mensen objectief meten. Ook binnen de revalidatiegeneeskunde worden wearables toenemend gebruikt, maar het is zeker nog niet overal en altijd een standaard onderdeel van behandeling.
De afgelopen jaren zijn er vanuit de afdeling Revalidatiegeneeskunde van het Erasmus MC verschillende projecten gedaan waarin prototypen ontwikkeld en geëvalueerd zijn die zich richten op de revalidatie van de bovenste extremiteit na een CVA. Het gaat daarbij om het geven van feedback tijdens (at-home) oefensessies en tijdens dagelijkse arm-hand activiteiten, en het thuis testen van arm-handvaardigheid. Deze klinisch-technologische projecten hebben veel informatie opgeleverd.
Maar er bestaan ook nog belangrijke vragen, waarbij de antwoorden essentieel zijn voor het bepalen van de verder te nemen stappen. Hoe wordt er door mensen uit de praktijk aangekeken tegen de (meer)waarde van de hierboven beschreven technologieën? Wat zijn belangrijke determinanten van acceptatie en gebruik? Welke toepassingen worden als meer of minder relevant gezien?

- Leerdoelen

Deelnemers:
1. hebben kennis van een aantal concrete onderzoekstoepassingen van wearables in de at-home CVA-revalidatie;
2. hebben - en dragen zelf bij aan - inzicht in de mogelijkheden van draagbare technologie én in de factoren die belangrijk zijn voor de uiteindelijke doorontwikkeling en toepassing in de praktijk.

- Voorzitter/sprekers met titels van de presentaties

o Hans Bussmann (voorzitter)
De toepassing van draagbare technologie in de thuisrevalidatie na een CVA (15’)
o Marc Evers en Lex van Gelder (duo presentatie)
Demonstratie van en visie op het ArmCoach4Stroke systeem
o Herwin Horemans (15’)
Het ArmCoach4Stroke project: onderzoeksbevindingen (15’)
o Coen Lauwerijssen
De ontwikkeling en toepassing van sensortechnologie binnen de revalidatiegeneeskunde: het perspectief van private partners (15’)
o Jetty van Ginkel
Discussie (30’)

- Indeling programma

o Het programma bestaat uit een algemene inleiding (achtergrond, projecten, doelen, aanpak), een demonstratie van het prototype van het ArmCoach4Stroke systeem door twee eindgebruikers (een [ex]patiënt en een behandelaar), en een beschrijving van de belangrijkste resultaten, ervaringen en lessen van de onderzoeksprojecten op dit gebied tot dusver. Bij al deze projecten zijn ook private partners betrokken: met het oog op ontwikkeling van prototypes, maar ook vanuit de wens dat deze uiteindelijk op de markt komen. Dit is echter een lang proces, waarin het van belang is al vroeg de visie van bedrijven mee te nemen vanwege hun expertise met productontwikkeling en marktonderzoek.
In het symposium willen we streven naar maximale interactie. Dit gebeurt door tijdens de presentatie voldoende tijd te reserveren voor vraag en antwoord, maar daarnaast wordt in het laatste half uur van het symposium tijd gereserveerd voor groepsdiscussie met de aanwezigen: hoe kijken zíj aan tegen de mogelijkheden en de voorwaardelijke en belemmerende factoren van de toepassing van wearables in de revalidatiezorg?

C7 Mini-symposium: Personalisation of lower limb assistive devices; how Human-in-the-loop optimization can revolutionize rehabilitation care.

Phd Niels Waterval[1], PhD Merel-Anne Brehm[1], Prof. dr. Han Houdijk[2], Dr. Juha Hijmans[2], Rein Miedema[1], Thijs Tankink[2], Rifko Kurnianto[2]
[1]Amsterdam UMC, [2]UMC Groningen

Annually, more than 150.000 lower limb assistive devices are prescribed in The Netherlands. These include orthopedic shoes, and lower limb orthoses and prostheses that for instance aim to prevent falls, reduce plantar pressure or lower walking energy cost. Despite technological developments, the effectiveness of these devices often does not live up to expectations. Key to this problem is the lack of tuning of these devices to the individual user. Currently, such tuning is a time- and labor-intensive process that relies on the subjective expertise of the provider, which oftentimes results in suboptimal outcomes.
A novel approach towards individualized tuning of assistive devices is the so-called Human-in-the-Loop optimization (HILO) method. Using HILO, properties of the assistive device, for example orthosis stiffness or prosthetic alignment are continuously changed. Simultaneously, objective measurements of relevant performance criteria during walking and an AI optimization algorithm efficiently guide the selection of the properties towards maximal performance. Due to continuous developments of assistive devices and availability of smart AI, we foresee a widespread implementation of HILO in rehabilitation care. In this mini-symposium we will explain HILO and demonstrate its large potential by showing recent applications in tuning of rocker shoes, and lower limb orthoses and prostheses.

Learning objectives:
- Understand the importance and potential of Human-in-the-Loop optimization for individualized tuning of lower limb assistive devices.
- Gain insights into the current developments of Human-in-the-Loop optimization in tuning of rocker shoes, lower limb orthoses and prostheses.
- Discuss how Human-in-the-Loop optimization could enhance clinical decision making and treatment outcomes in rehabilitation care.

Chair and presentations
Chairs: Prof. dr. Han Houdijk, UMC Groningen & dr. Merel-Anne Brehm, Amsterdam UMC
1. Presentation: Human-in-the-Loop optimization, what is it and why would it help improve efficacy of lower limb assistive technology?
Presenter: Niels Waterval, Amsterdam UMC
2. Presentation: Human-in-the-loop optimization of rocker shoes to reduce peak plantar pressure
Presenter: Rifko Kurnianto, UMCG Groningen
3. Presentation: ADJUST-AFO; personalisation of the ankle-foot-orthosis stiffness to maximize walking performance
Presenter: Merel-Anne Brehm, Amsterdam UMC
4. Presentation: Human-in-the-loop optimization to tune stiffness and alignment of transtibial prostheses
Presenter: Thijs Tankink, UMC Groningen

5. Demo of adjustable lower limb assistive devices and closing discussion
Presenter: Juha Hijmans, UMC Groningen

Program summary
In this mini-symposium we will demonstrate the potential of Human-in-the-Loop optimization for rehabilitation care, and specifically the prescription and tuning of personalized lower limb assistive devices. The first presentation will explain Human-in-the-Loop optimization, followed by the why and how this method can revolutionize personalization of lower limb assistive devices. Thereafter three use cases were Human-in-the-Loop optimization was used within different populations in the Amsterdam UMC and UMC Groningen are presented. First, the effects of Human-in-the-Loop optimization of rocker shoes apex parameters to optimize plantar pressure distribution is presented. Secondly, we will show the preliminary results of how the ankle-foot orthosis stiffness can be optimized using the ADJUST-AFO, a newly developed AFO of which the stiffness can be varied and optimized during walking. Third, the application of Human-in-the-Loop optimization to tune stiffness and alignment of a prosthetic foot will be discussed. These presentations are followed by a live demonstration of the adjustable assistive devices. The symposium will be finished with a panel discussion on which steps are necessary to revolutionize rehabilitation through implementation of Human-in-the-Loop optimization and set-up (multicenter) studies about their (cost-) effectiveness.

C8 Mini-symposium: Diagnostiek en behandeling van het lopen bij een incomplete dwarslaesie; laatste inzichten uit onderzoek

Dr. Rutger Osterthun[1], dr. Marije Vos[2], Prof. dr. Noël Keijsers[2,3], Dr. Marike Maijers[4], Simone Berkelmans[4,5]
[1]Rijndam Revalidatie En Erasmus MC, [2]St. Maartenskliniek, [3]RadboudUMC, [4]Reade, [5]Vrije Universiteit Amsterdam

De meeste mensen met een dwarslaesie hebben een incomplete dwarslaesie en een loopfunctie. Recent onderzoek geeft nieuwe inzichten in de meerwaarde van (nieuwe) diagnostiek en behandeling van de loopfunctie bij deze groep mensen met een dwarslaesie. In deze sessie worden de inzichten gepresenteerd uit recent onderzoek.

Leerdoelen
- Inzicht in verschillen tussen mensen die lopen en een rolstoel gebruiken na een dwarslaesie op gebied van gezondheid, functioneren en kwaliteit van leven
- Inzicht in de meerwaarde van draagbare sensoren om het lopen te meten
- Inzicht in de effecten van training van het loopaanpassingsvermogen en conventionele loop- en krachttraining
- Inzicht in de potentie van een intensief persoonlijk trainingsprogramma voor het behalen van persoonlijke doelen gerelateerd aan staan- en/of loopfunctie bij mensen met een incomplete dwarslaesie
- Inzicht in de potentie van elektrostimulatie om het lopen te verbeteren bij mensen met een incomplete dwarslaesie.

Voorzitter/sprekers met titels
1) Dr. R. Osterthun, MD, PhD, revalidatiearts Rijndam Revalidatie en Erasmus MC, Rotterdam (voorzitter)
Titel: Gezondheid, functioneren en kwaliteit van leven bij mensen die kunnen lopen na een dwarslaesie; beter dan dat van mensen die een rolstoel gebruiken?

2) Dr. M. Vos, MD, PhD, revalidatiearts, St. Maartenskliniek, Nijmegen
Titel: Draagbare sensoren om het lopen te meten: wat is de meerwaarde?

3) Prof. dr. N. L.W.Keijsers, PhD, St. Maartenskliniek/RadboudUMC, Nijmegen
Titel: Training van het loopaanpassingsvermogen en conventionele loop- en krachttraining; resultaten van een RCT.

4) Dr. M. Maijers, MD, PhD, revalidatiearts Reade, Amsterdam
Titel: INSPIRE: een INtenSief PersoonlIjk REvalidatieprogramma voor het verbeteren van fysiek herstel bij mensen met een motorische en sensibele incomplete dwarslaesie in de post-klinische fase. De resultaten van een pilot.

5) S. Berkelmans, PhD-kandidate, Vrije Universiteit Amsterdam en Revalidatiecentrum Reade
Titel: Effectiviteit van FES-ondersteunde looptraining bij incomplete dwarslaesie – een pilot studie.

Indeling programma

1) Introductie op het programma. Hierbij wordt ingegaan op waar mensen met een loopfunctie na een dwarslaesie in hun dagelijks leven tegenaan lopen, en de verschillen daarin met mensen die van een rolstoel gebruik maken.(15min)

2) Er zijn grote verschillen tussen wat iemand kan in een testsituatie (“capacity”) en wat iemand in het dagelijks leven daadwerkelijk doet (“performance”). De validiteit en meerwaarde van draagbare sensoren in het meten van loopactiviteit is bij klinische revalidanten onderzocht.(15min)

3) Middels een gerandomiseerd gecontroleerde studie met cross-over design is de effectiviteit van twee interventies en verschillende interventievolgordes onderzocht. De mogelijke verschillen tussen een training gericht op het verbeteren van het loopaanpassingsvermogen en conventionele loop- en krachttraining worden gepresenteerd.(15min)

4) Een pilotstudie wordt gepresenteerd waarin wordt geëvalueerd of een 8-weken durende klinische opname met een intensief, persoonlijk en taak-specifiek trainingsprogramma kan leiden tot het behalen van persoonlijke doelen gerelateerd aan staan- en/of loopfunctie bij mensen met sinds maximaal 2 jaar een incomplete dwarslaesie.(15min)

5) In deze presentatie wordt een pilot studie gepresenteerd. Vijf mensen met een incomplete dwarslaesie deden mee aan 10-weken looptraining met functionele elektrostimulatie. Het doel van deze studie was om de haalbaarheid, veiligheid en effectiviteit van FES-ondersteunde looptraining te onderzoeken.(15min)

6) Paneldiscussie.(15min)

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*

Tijdens de DCRM 2024 in 's-Hertogenbosch worden de beste proefschriften op het gebied van revalidatiegeneeskunde in het academisch jaar 2023-2024 gepresenteerd. Na afloop kiest de jury de winnaar van de PhD Award Revalidatiegeneeskunde 2024

De PhD Award Revalidatiegeneeskunde is een prijs die jaarlijks wordt uitgereikt voor het beste en meest aansprekende proefschrift op het gebied van revalidatiegeneeskunde in Nederland. Het doel van deze prijs is om kwalitatief hoogstaand onderzoek te waarderen en te bevorderen en de onderzoekers in het zonnetje te zetten.

De vier genomineerden voor de prijs zijn (in alfabetische volgorde):

• **Florian Allonsius** – On the road to optimize rehabilitation for young individuals with acquired brain injury

• **Nienke Kerver** – The effectiveness and cost-effectiveness of upper limb prostheses

• **Anouk Tosserams** – Compensation strategies for gait impairment in Parkinson's disease: towards personalized gait rehabilitation

• **Jord Vink** – Plasticity of neural networks

Florian Allonsius - ***On the road to optimize rehabilitation for young individuals with acquired brain injury***

Identifying, targeting, and evaluating the consequences of Acquired Brain Injury (ABI) in young individuals (4-25 years old) are essential elements of medical specialist rehabilitation care for this group. Several knowledge gaps regarding the occurrence and severity of consequences and the delivery of rehabilitation existed.

This thesis enhanced the understanding of ABI-related consequences and aimed to optimize rehabilitation care provided to young Dutch individuals with ABI

Section 1 of this thesis investigated the severity and course over 2 years of persisting ABI-related problems in young people with ABI and their families. In this cohort, many problems

were found in the domains of Health-related Quality of Life (HRQoL), fatigue, participation, and family impact at time of referral to rehabilitation and these problems tended to persist over time.

In section 2, the structure and process of rehabilitation for young patients with ABI across Dutch rehabilitation centers and the development of a national consensus-based framework for clinical practice, including preferred assessments, interventions, and psychoeducation, for young people with ABI was described.

This thesis emphasizes the importance of a holistic approach to rehabilitation and lays the foundation for future initiatives aiming to further optimize rehabilitation treatment for young individuals with ABI and their families.

Florian Allonsius is an enthusiastic postdoc researcher at Basalt Rehabilitation Center in The Hague, The Netherlands and a lecturer in Pediatric Physical Therapy at the Avans University of applied sciences in Breda. He started his career as a pediatric physical therapist and worked in several (academic) hospitals and at Basalt Rehabilitation Center. During his master studies in Physical Therapy he became very interested in doing research. His current field of research contains brain injuries in young patients (children, adolescents, and young adults) in the rehabilitation phase after the onset of brain injury. He completed his PhD at the Leiden University Medical Center (Leiden, The Netherlands) with the thesis 'On the road to optimize rehabilitation for young individuals with Acquired Brain Injury'. He currently works as a postdoc researcher on several research projects.

Nienke Kerver – ***The effectiveness and cost-effectiveness of upper limb prostheses***

In this thesis the multi-grip and 'standard' myoelectric hands were compared using physical tests and questionnaires, which showed no clear advantages for multi-grip over 'standard' hands. Furthermore, our nationwide survey study showed that the average annual cost of myoelectric hands, especially multi-grip hands, is higher than other hand prostheses while no differences in quality of life or user experiences were found. More specifically, multi-grip hands were less cost-effective than 'standard' myoelectric hands. Lastly, to support the prosthesis selection process and help inform potential prosthesis users, we developed a digital patient decision aid in a systematic co-creation process.

Ultimately, we hope this thesis will help to improve the prosthesis prescription process, decrease rejection rates of upper limb prostheses, and increase the cost-effectiveness of upper limb prosthesis related healthcare.

Nienke Kerver started her academic journey in 2010 with a Bachelor of Human Movement Sciences at the University of Groningen. After completing the Bachelor's, she started the Pre-Master and Master of Medicine in 2013. Subsequently, in 2018, she worked as a medical doctor at the neurology department at the Isala Hospital in Zwolle. During this period, she gained experience as a doctor, however, research also continued to interest her. In December 2018, Nienke started her PhD research at the department of Rehabilitation Medicine of the University Medical Centre Groningen. The results are described in this thesis (see above). During her "journey", she found out that within the rehabilitation medicine all her interests came together. Currently, Nienke works as a medical trainee in rehabilitation medicine. After finishing her specialization, she hopes to combine research and clinical work.

Anouk Tosserams – ***Compensation strategies for gait impairment in Parkinson's disease: towards personalized gait rehabilitation***

Parkinson's disease is a neurodegenerative disorder that is becoming increasingly prevalent. Many people with Parkinson's disease experience difficulty walking, which seldomly responds well to dopaminergic treatment alone. Fortunately, they often spontaneously invent creative 'tricks' to still get ahead. For example: walking to the rhythm of music, counting, imitating someone else, or hopping. This dissertation shows that these compensatory strategies seem to make use of different 'routes' in the brain to improve walking, by bypassing the part of the brain that is most affected by Parkinson's disease. The studies presented demonstrate that these strategies generally work very well, but that the effect of specific compensation strategies does vary greatly from person to person: what helps one person, may actually make walking more difficult for another. Therefore, individually tailored treatment is essential. The insights from this dissertation contribute to improving the knowledge of patients and healthcare professionals on the wide range of compensation strategies available to support walking, and facilitate the development of a more personalized gait rehabilitation approach.

Anouk Tosserams was born on November 13th 1994 in 's-Hertogenbosch. She obtained her medical degree in 2019, graduating cum laude from the Radboud University, Nijmegen. She then started her PhD trajectory at the Radboudumc Centre of Expertise for Parkinson and Movement Disorders, aimed at gaining a deeper understanding of compensation strategies for gait impairment in Parkinson's disease. She was supervised by Prof. dr. Bastiaan R. Bloem, Prof. dr. Vivian Weerdesteyn and dr. Jorik Nonnekes. Anouk implemented her research findings in clinical practice through the co-development of an interactive online platform on gait compensation strategies (EN: www.walkingwithparkinson.com; NL: www.radboudumc.nl/lopenmetparkinson). Her work was highlighted by international media, and awarded with the Klokhuis Wetenschapsprijs 2023. As of May 2023, Anouk works as a resident in Neurology at the Radboudumc. As a postdoctoral researcher, she continues to be involved in several projects on gait rehabilitation for people with Parkinson's disease.

Jord Vink – ***Plasticity of neural networks***

In the Netherlands, nearly 400,000 people live with the consequences of a stroke, most of whom experience upper limb impairments. The current standard of care for post-stroke upper limb impairment is intensive rehabilitation, which consists primarily of training-based therapies, such as physical and occupational therapy. Despite these efforts, many patients continue to experience persistent impairments, hampering daily activities, societal participation and quality of life.

Transcranial magnetic stimulation (TMS), a form of non-invasive brain stimulation, is a promising tool to improve upper limb recovery after stroke. The efficacy of TMS in improving post-stroke upper limb recovery is currently being investigated in the B-STARS2 trial, a phase III randomized controlled trial (RCT) with 16 participating rehabilitation centers in the Netherlands. The outcome of this trial will determine whether TMS treatment can be applied as standard of care in post-stroke rehabilitation.

This thesis describes the background, rationale and current evidence for the application of TMS treatment in post-stroke upper limb rehabilitation. It outlines how TMS can activate and modulate brain networks, presents evidence supporting the proposed mechanism of action and

details the results of the B-STARS trial that preceded B-STARS2 — a phase II monocenter trial where 60 patients at De Hoogstraat Rehabilitation received TMS treatment.

Jord Vink is a technical physician and postdoctoral researcher at the University Medical Center Utrecht and De Hoogstraat Rehabilitation. His primary research focus is the use of transcranial magnetic stimulation (TMS), a non-invasive brain stimulation method, to enhance neuroplasticity and recovery after stroke. At Beth Israel Deaconess Medical Center and the UMC Utrecht, he combined TMS with neuroimaging methods, such as electroencephalography and functional magnetic resonance imaging, to better our understanding of the effect of TMS on brain networks. During his PhD, he successfully conducted the B-STARS trial, a phase II monocenter trial on TMS treatment to promote upper limb recovery after stroke. The promising results of the B-STARS trial allowed him to setup a multicenter trial across 16 Dutch rehabilitation centers, named B-STARS2. The outcome of this trial will determine whether TMS treatment can be integrated in standard rehabilitative care to promote upper limb recovery after stroke.

D2. Debat

Meer patiënten minder middelen: kansen voor de revalidatiegeneeskunde
Debatleider is **Hans Oosterkamp.**

Meer informatie over de inhoud volgt nog.

Parallel Session E

E1. Workshop: Toenemend eigenaarschap en professionaliteit van ervaringsdeskundigen; haken we af of haken we aan?
E2. Workshop: Het bespreken van diagnose en prognose met patiënten in de spreekkamer: waarom is dat lastig?
E3. Mini-symposium: Chirurgische behandelmogelijkheden van de bovenste extremiteit bij dwarslaesie, perifeer zenuwletsel en hersenletsel
E4. Mini-symposium: 10 jaar SCORE onderzoek: Resultaten en kansen voor de revalidatiegeneeskunde
E5. Mini-symposium: Durven we de RCT los te laten? Kennishiaten oplossen met bestaande en real-world data
E6. Mini-symposium: Revalidatie en Arbeid; ontwikkelingen, grenzen en kansen
E7. Mini-symposium: Ankle-foot surgery in patients with neurological gait disorders
E8. Mini-symposium: Zorg voor de toekomst: 2 pilots met een vernieuwende samenwerking voor het jonge kind

E1. Workshop: Toenemend eigenaarschap en professionaliteit van ervaringsdeskundigen; haken we af of haken we aan?

Dr. Annette Van Kuijk[1], Paul Boeren[2], Harmen Hiddink[3], Mijke Ulrich, Mia Willems
[1]Tolbrug / Jeroen Bosch Ziekenhuis, [2]Dwarlesie Organisatie Nederland, [3]Sint Maartenskliniek

Afgelopen DCRM hebben we stilgestaan bij de meerwaarde van ervaringsdeskundigheid tijdens de medisch specialistische revalidatie (MSR). Intussen heeft de wereld niet stilgestaan. Ervaringsdeskundigen binnen en buiten de revalidatie pakken zelf de handschoen op om de kloof tussen de wereld tijdens de revalidatie en de wereld eenmaal weer thuis te overbruggen. Thuis start het leerproces naar persoonlijk herstel en een nieuwe identiteit. Ervaringsdeskundigen zijn daarin van toegevoegde waarde. Zij helpen de patiënt de opbrengst uit het revalidatietraject optimaal te benutten.

De organisatie en professionaliteit van deze ervarings-deskundigen groeit en versnelt. Op sociale media, in de regio en bij patiëntenverenigingen zien we veel initiatieven. Een ontwikkeling die voorziet in een behoefte, die groeit en niet meer stopt.
Toegang tot deze ervaringsdeskundige ondersteuning hangt nu af van het netwerk en de assertiviteit van de patiënt. Door de kloof tussen formele zorg en informele zorg te slechten, kunnen we deze voor iedereen toegankelijk maken. Effectievere revalidatie voor onze patiënten; haak jij af of haak je aan?

Na afloop hebben deelnemers
-Kennis van vormen van ervaringsdeskundigheid buiten de MSR en de toegevoegde waarde
-Handvatten voor samenwerking tussen formele en informele zorg, om met vertrouwen toe te leiden naar ervaringsdeskundigen buiten de eigen organisatie.

Voorzitters & gespreksleider:
Paul Boeren, Annette van Kuijk.

Sprekers informatieve pitches:
1) Hersenspinsels, de podcast: Harmen Hiddink: ervaringsdeskundige Sint-Maartenskliniek en podcastmaker
2) Levenslang leren vanuit perspectief patiëntorganisatie: Paul Boeren: ervaringsdeskundige Dwarslaesie Organisatie Nederland vertelt over de rol die patiënt organisaties als de DON daarbij kunnen spelen
3) Levenslang leren is niet diagnose gebonden. Mia Willems vertelt vanuit haar ervaring binnen Mijn leven 2.0 hoe dat ook op een niet diagnose gebonden manier kan
4) Hervinden van veerkracht met behulp van kunst: Mijke Ulrich, zelfstandig ervaringsdeskundige regio Eindhoven.

Panelleden: sprekers pitches, Marleen Kampert, ervaringsdeskundige en voormalig fysiotherapeut, Ruth Wobma, onderzoeker ervaringsdeskundigheid.

Programma
Podcast (van ongeveer 5 min) van tevoren gemaakt door Marleen Kampert en Harmen Hidding ter voorbereiding voor deelnemers, met introductie onderwerp en prikkelend, zodat zij voorbereid beginnen aan het goede gesprek.

Eerste 30 minuten (informatief)
- Welkom
- 5 Goede voorbeelden in korte pitches van max. 5 minuten:

Vragen te beantwoorden tijdens deze pitches:
- Wat doe je precies voor lot-/bondgenoten; hoe ziet het eruit?
- Wat is de drijfveer die daarachter zit?
- Wat heb je te bieden aan de MSR?
- Wat heb je nodig van MSR?

Daarna 40-50 minuten goede gesprek met panel en zaal,
over thema's:
- Hoe verbind je wat tijdens de MSR wordt geleerd met wat daarbuiten in de daadwerkelijke leefwereld nodig is? Wie heeft daar een rol/ verantwoordelijkheid in?
- Er is van alles in die wereld buiten de MSR. Je ziet door bomen het bos niet en kunt kaf niet van koren onderscheiden. Hoe kan ik met gerust hart adviseren?

Tijdens dit gesprek zal een (be)tekenaar aanwezig zijn die rode draad, tips en acties in tekening vastlegt.

Laatste 10 minuten: bespreken tekening en afsluiting.
Wat nemen we hieruit mee en perspectief hoe verder op proces vanuit VRA en RN?

E2. Workshop: Het bespreken van diagnose en prognose met patiënten in de spreekkamer: waarom is dat lastig?

Dr Mattijs Alsem[1,2], Drs Jet van der Kemp[1,2], Dr Iris van Wijk[1,2], Dr Anita Beelen[1,2], Dr. Marjolijn Ketelaar[1,2], Vertegenwoordiger vanuit patientenvereniging
[1]UMC Utrecht, Afdeling Revalidatiegeneeskunde, Fysiotherapiewetenschappen en Sport,
[2]Kenniscentrum Revalidatiegeneeskunde Utrecht

Een belangrijke determinant van revalidatiegeneeskundige behandelingen is de functionele prognose van de patiënt. Hoewel we steeds beter weten wat de verwachtingen voor aandoeningen zijn op groepsniveau, zijn gesprekken hierover met de individuele patiënt vaak complex. Enerzijds is het lastig om wetenschappelijke inzichten (op groepsniveau) te vertalen naar de individuele patiënt, anderzijds is het zaak om patiënten en/of ouders zo goed als mogelijk toe te rusten (met kennis en vaardigheden) om te komen tot gezamenlijke besluitvorming en aan te sluiten bij de individuele informatiebehoeften van de patiënt of diens ouders. Het afstemmen tussen individuele informatiebehoeften en kennis over functionele prognose is een kernvoorwaarde voor gezamenlijke besluitvorming, dus het belang van een goed gesprek is groot.

In deze workshop zullen we een aantal aspecten behandelen over het voeren van gesprekken over de diagnose en prognose met patiënten met verschillende aandoeningen en/ of hun ouders.

Aan het eind van de sessie hebben deelnemers:
- Kennis van belangrijke aspecten van diagnose/prognosecommunicatie, toegepast bij (aanstaande) ouders van kinderen met een reductiedefect of cerebrale parese en patiënten met ALS.
- Geoefend met enkele gesprekstechnieken die je zou kunnen toepassen in de praktijk
- Geleerd van elkaars ervaringen over wat moeilijk is in deze communicatie en wat helptin de praktijk

Voorzitter/Sprekers
Dr. M. Alsem, kinderrevalidatiearts, onderzoeker KCRU
Dr. M. Ketelaar, senior-onderzoeker KCRU; UMC Utrecht en De Hoogstraat Revalidatie (KCRU)

Sprekers
Drs. J vd Kemp, AIOS revalidatiegeneeskunde en PhD candidate, KCRU
Dr. I v Wijk, kinderrevalidatiearts, onderzoeker KCRU
Dr. A Beelen, senior-onderzoeker KCRU
Vertegenwoordiger Oudervereniging CP Nederland/ ALS vereniging.

Beschrijving

- Inleiding (Alsem/Ketelaar): Wat is het probleem?
Is het lastig om de diagnose en prognose te bespreken met patiënten/ouders?

We weten steeds meer over het functioneren van (groepen) patiënten, maar waarom blijft het gesprek hierover lastig?
Discussie tussen de deelnemers

- Korte presentaties
--Prenatale counseling bij ouders die zwanger zijn van een kind met een reductiedefect (v Wijk)
Kern: Hoe sluit ik aan bij de informatiebehoefte van de ouders, waarbij er soms ook nog een beslissing over de voortgang van de zwangerschap moet worden genomen. Welk beeld schets je, hoe uitgebreid en welke informatie heb ik als zorgverlener nodig
--Bespreken van de diagnose met ouders van jonge kinderen met (risico op) CP. (vd Kemp)
Kern: Wat zijn de behoeften van ouders t.a.v. communicatie, informatie en ondersteuning? Hoe maak ik de vertaalslag van wetenschappelijke inzichten ten aanzien van het functioneren naar de individuele patiënt?
--Bespreken van de levensverwachtingen met patiënten met ALS. (Beelen)
Kern: het bespreken van de individuele levensverwachting bij ALS vereist een goede aansluiting op individuele wensen en behoeften van de persoon met ALS en diens naasten. Zo kan het mensen met ALS meer controle geven over hun zorg en de lastige keuzes die hierin gemaakt moeten worden.

- Zien we verschillen/overeenkomsten tussen deze groepen? (Alsem/allen) Vorm versus inhoud: mogelijke rollen in consultvoering/besluitvorming
-Hoe kun je de communicatie met ouders verbeteren, de juiste luisterhouding. Oefenen met gespreksvoering. (Alsem/v Wijk)
- Wrap-up, afronding, wat gaan we maandag anders doen? (Alsem)

E3. Mini-symposium: Chirurgische behandelmogelijkheden van de bovenste extremiteit bij dwarslaesie, perifeer zenuwletsel en hersenletsel

PhD Corien Nikamp[1,2], MD Ellen Maas[1], MD Nora Jacobs[1], PT Leontien Bies[1], MD Ellen Veldboom[1], MD Merel Bijleveld[1,3]
[1]Roessingh, Centrum voor Revalidatie, [2]Roessingh Research & Development,
[3]Streekziekenhuis Koningin Beatrix

Sessiebeschrijving:
Dit symposium beoogt inzicht te bieden in de chirurgische behandelopties van de bovenste extremiteit bij patiënten met centraal of perifeer zenuwletsel.

Het neurohandchirurgie team in Twente biedt sinds jaren chirurgische behandelingen aan bij mensen met centraal of perifeer zenuwletsel. Hier zijn een uitgebreid indiceringstraject, ervaren handchirurgen en intensieve nabehandeling voor nodig, waarbij voor elke patiënt de individuele situatie worden meegenomen in een gepersonaliseerde behandeling. Intensieve samenwerking tussen het revalidatieteam en de plastische chirurgie is een vereiste.

Er zal in dit symposium worden stilgestaan bij de organisatie van zorg voor de verschillende doelgroepen. Aan de hand van casuïstiek zal nader inzicht worden verschaft welke klinische kenmerken worden meegewogen om tot een behandelplan te komen. Ook de postoperatieve revalidatiefase en het resultaat komen aan bod.

Verder zullen de eerste inzichten worden gedeeld van ruim 5 jaar zenuwtransfers bij dwarslaesiepatiënten door neurohandchirurgie team Twente: wat zijn de uitkomsten en welke factoren zijn hierop van invloed?

Leerdoelen:
1) Inzicht verkrijgen in chirurgische behandelopties voor de bovenste extremiteit bij patiënten met een dwarslaesie, perifeer zenuwletsel of bij hersenletsel
2) Kennis vergroten over het klinische beslisproces en de uitkomsten bij neurohandchirurgie
3) Inzicht verkrijgen in resultaten na zenuwchirurgie bij dwarslaesiepatiënten

Programma:
Introductie symposium
Voorzitter: Corien Nikamp, PhD
5 minuten

Arm-handchirurgie bij patiënten met dwarslaesie of perifeer zenuwletsel: diagnostisch proces en casuïstiek
Presentatoren: Ellen Maas, MD; Nora Jacobs, MD; Leontien Bies, FT
40 minuten

Eerste resultaten van >5 jaar zenuwchirurgie bij dwarslaesiepatiënten door neurohandchirurgie team Twente
Presentator: Ellen Veldboom, MD

10 minuten

Arm-handchirurgie bij patiënten met hersenletsel: diagnostisch proces en casuïstiek
Presentator: Merel Bijleveld, MD
20 minuten

Algemene discussie en vragen
Voorzitter: Corien Nikamp, PhD
5 minuten

Totaal: 1 uur 20 min

Na een korte introductie richt de eerste presentatie zich op het beschrijven van de patiëntenstroom bij arm-handchirurgie voor mensen met een dwarslaesie of perifeer zenuwletsel binnen het Roessingh Diagnostisch Centrum voor arm-hand. Hierbij wordt ingegaan op de samenwerking in Nederland op het gebied van reconstructieve arm-handchirurgie, in- en exclusiecriteria, klinimetrie en mogelijke behandelopties. De rol van het neurohandchirurgie team Twente, waarin het revalidatieteam van Roessingh, Centrum voor Revalidatie en de plastisch chirurgen van Medisch Spectrum Twente intensief samenwerken, komt hierbij uitgebreid aan de orde. Deze samenwerking en het behandeltraject zullen geïllustreerd worden aan de hand van casuïstiek.

In de 2e presentatie worden de tot nu behaalde resultaten bij reïnnervatie van de posterior interosseus nerve (PIN) en anterior interosseus nerve (AIN) bij mensen met een dwarslaesie toegelicht. In de afgelopen ruim 5 jaar zijn deze patïenten door het neurohandchirurgie team in Twente behandeld. Wat zijn de uitkomsten en welke factoren zijn hier op van invloed?

Het mini-symposium wordt afgesloten met een presentatie over het diagnostisch traject voor patiënten met hersenletsel, zoals we dit in Roessingh vormgeven. Een casus van een CVA patiënt met een a-functionele arm en daarbij klachten van pijn en spanning wordt nader toegelicht. We besteden aandacht aan het lichamelijk onderzoek, de klinimetrie, de indicatiestelling voor een operatieve ingreep en de waarde van multidisciplinaire samenwerking hierbij. Tevens wordt de nabehandeling na een dergelijke ingreep besproken.

E4. Mini-symposium: 10 jaar SCORE onderzoek: Resultaten en kansen voor de revalidatiegeneeskunde

Dr. Diana Oosterveer[1,2], Dr. Paulien Goossens[1,3], Dr. Winke van Meijeren-Pont[1], Peter Rijken, Dr. Jorit Meesters[1,4]
[1]Basalt, [2]Alrijne Ziekenhuis, [3]Haaglanden Medisch Centrum, [4]De Haagse Hogeschool

Het Stroke Cohort Outcomes of REhabilitation (SCORE)-onderzoek bestaat 10 jaar. Dit observationele onderzoek van Basalt volgt revalidanten met een beroerte. Aanvankelijk om uitkomsten, praktijkvariatie in proces en structuur, en kosten te meten. Momenteel is het onderzoek meer gericht op meeteigenschappen van nieuwere patient-reported outcomes (PROMs). In dit mini-symposium nemen we je graag mee in de resultaten en aanbevelingen vanuit 10 jaar onderzoek. Wij zien in onze resultaten mooie kansen voor ons vak!

Leerdoelen zijn o.a.:
- kennis over praktijkvariatie en kosten m.b.t. CVA revalidatie tussen revalidatiecentra van het SCORE onderzoek
- kennis over de uitkomsten en aanbevelingen vanuit het SCORE onderzoek
- kennis over de bevindingen Fast@home, huidige stand van zaken t.a.v. eHealth/blended care, en kansen op dit gebied

Programma
- 02 min Introductie door Diana Oosterveer

- 25 min Praktijkvariatie en kosten door Paulien Goossens en verminderen ongewenste praktijkvariatie middels REVION verbeterteam door Diana Oosterveer

Het SCORE onderzoek vond praktijkvariatie in structuur en proces van CVA revalidatie tussen revalidatiecentra. We lichten deze verschillen toe en berekenden conform value-based health care principes ook de (maatschappelijke) kosten tot 1 jaar na CVA. Momenteel worden er vervolgstappen gezet om ongewenste praktijkvariatie tussen revalidatiecentra te verminderen middels een verbeterteam. De eerste ervaringen hiermee worden gedeeld in deze presentatie.

- 25min Uitkomsten en aanbevelingen van het SCORE-onderzoek door Winke Pont en ervaringsdeskundige Peter Rijken (een SCORE onderzoekspartner) en ontwikkelingen t.a.v. meten van uitkomsten middels PROMs door Diana Oosterveer

Het SCORE onderzoek keek o.a. naar het verloop van verschillende symptomen/uitkomsten en lange-termijn uitkomsten, maar ook naar ziektepercepties en patiëntactivatie, een belangrijke voorwaarde voor zelfmanagement. In deze presentatie lichten we de uitkomsten toe en geven we gerichte aanbevelingen. Tenslotte wordt er ingegaan op ontwikkelingen t.a.v. het meten van uitkomsten middels PROMs.

- 25 min Fast@home, een studie binnen het SCORE onderzoek en de kansen/ontwikkelingen t.a.v. blended care door Jorit Meesters

EHealth en blended care zijn bij uitstek thema’s die passen bij maatschappelijke veranderingen en kansen voor de revalidatiegeneeskunde. In deze presentatie worden de bevindingen van Fast@home, een studie binnen het SCORE uitgelicht, de huidige stand van zaken t.a.v. blended care binnen Basalt en verdere kansen en ontwikkelingen op dit gebied besproken.

- 13min Vragen en discussie

E5. Mini-symposium: Durven we de RCT los te laten? Kennishiaten oplossen met bestaande en real-world data

PhD Esther Hosli[1], Prof. dr. Ruud Selles[2,3], PhD Robbert Wouters[2], PhD, MD Heleen Huijsmans[3], PhD, MD Suzanne Lambregts[4]
[1]Ned. Vereniging Van Revalidatieartsen, [2]Erasmus MC, [3]Rijndam, [4]Revant

SESSIE OMSCHRIJVING

De Kennisagenda Revalidatiegeneeskunde bevat vijftien kennishiaten, waarvan we het als beroepsgroep belangrijk vinden dat ze opgelost worden. Hoe kunnen we voortgang boeken bij het oplossen van deze kennishiaten? Het eerste waar we aan denken is vaak “door het opzetten van nieuw (zorgevaluatie)onderzoek”. Maar er zijn ook andere manieren om antwoorden op kennishiaten te vinden. Bijvoorbeeld door het gebruik van in de zorg verzamelde data (real-world data) of door het gebruik van bestaande data en resultaten uit eerder onderzoek. Naast dat dit vaak efficiënter en goedkoper is, kan dit ook een uitkomst bieden in situaties waarin het niet haalbaar of ethisch verantwoord is om te randomiseren. In dit mini-symposium gaan we aan de hand van een algemene methodologische inleiding en een aantal concrete voorbeelden, met elkaar in gesprek over kansen om met bestaande en real-world data kennishiaten te beantwoorden. Wat is ervoor nodig om bestaande en real-world data voor dit doel te kunnen gebruiken? Wat verstaan we onder passend bewijs bij het beantwoorden van een kennishiaat? Zijn we bereid andere evidentie te aanvaarden dan randomized controlled trials?

Dit mini-symposium illustreert kansen voor het gebruik van bestaande en real-world data, in een veranderende maatschappij. Een maatschappij waarin de onderbouwing van (kosten)effectiviteit van behandelingen steeds belangrijker wordt, maar er tegelijkertijd ook meer mogelijkheden daarvoor zijn, o.a. doordat de beschikbaarheid van data toeneemt.

PRESENTATIES

Voorzitter: Diana Oosterveer, of een ander WeCo lid

Presentaties:

- Ruud Selles: “Niet random: de methodologie van effectiviteitsonderzoek met bestaande en real-world data”
- Heleen Huijsmans: “Het leed verzachten: analyse van real-world data uit de pijnrevalidatie”
- Robbert Wouters: “De Duimschroeven Aandraaien: Real-World Uitkomsten van Duimbasisartrose versus de RCT”
- Suzanne Lambregts: “Shockwave bij kinderen, multicentrum analyse van ESWT zorgdata”
- Esther Hosli: “Andere wegen: landschapsanalyse voor een kennishiaat op basis van bestaande data en resultaten uit eerder onderzoek”

INDELING PROGRAMMA

De opzet van dit mini-symposium is interactief: korte presentaties, met ruimte voor discussie. De presentaties bestaan uit een algemene methodologische inleiding op het onderwerp, gevolgd door enkele concrete, uitgewerkte voorbeelden. In de voorbeelden zijn verschillende soorten bestaande en real-world data gebruikt om een antwoord te vinden op een kennishiaat.

Door de combinatie van concrete voorbeelden met ruimte voor discussie willen we deelnemers bewust maken van en mee laten denken over de waarde en mogelijkheden van bestaande en real-world data voor de onderbouwing van (kosten)effectiviteit binnen de revalidatiegeneeskunde.

E6. Mini-symposium: Revalidatie en Arbeid; ontwikkelingen, grenzen en kansen

Prof. Michiel Reneman, Prof. dr. Coen van Bennekom, Dr. Fred de Laat, Dr. Ellen Roels
[1]University Medical Center Groningen

Sessiebeschrijving
Dat veel van onze patiënten weer willen werken of hun werk willen behouden is geen nieuwe maatschappelijke ontwikkeling. Wel nieuw en nog in ontwikkeling is de financiering en de organisatie van arbeid en revalidatie. Daarnaast is de inhoud van onze zorg continu in ontwikkeling en staan we voor grote uitdagingen in de toekomst (IZA). Arbeid is niet alleen een doel, maar ook een must! Waarbij arbeidsrevalidatie steeds meer een middel is om tot een optimale revalidatie uitkomst te komen.
Dit mini-symposium opent met 3 wetenschappelijke projecten op het snijvlak revalidatie en arbeid voor patiënten met NAH, persisterende musculoskeletale pijn en dwarslaesie. Vervolgens presenteren we de afbakeningen zoals beschreven in het duidingsrapport van het Zorginstituut (2023), en relevante onderdelen van de nieuwe generieke FMS richtlijn 'Arbeid' (autorisatiefase). Daarna beschouwen we de ontwikkelingen samen met de deelnemers in het thema van deze DCRM: kansen voor de revalidatiegeneeskunde.

Leerdoelen.
De deelnemer:
- Is up-to-date t.a.v. drie relevante inhoudelijke ontwikkelingen;
- Is op de hoogte van de relevante delen van de afbakening revalidatie / arbeid en richtlijn Arbeid;
- Ziet mogelijkheden om arbeid gerelateerde revalidatie in te passen in dagelijkse praktijk

Presentaties
Coen van Bennekom/ Judith van Velzen: individual placement and support (IPS) voor mensen met NAH
- De 'Individuele Plaatsing en Steun (IPS-)' methode is een interventie waarmee zeer succesvol mensen met ernstige psychiatrische aandoeningen aan werk worden geholpen. Een IPS-trajectbegeleider bekijkt wat iemand voor werk zou willen doen. Daarna wordt direct werk gezocht. Zodra iemand aan het werk is, wordt ook gestart met training en coaching. Bij het IPS+NAH project is onderzocht of IPS ook ingezet kan worden bij mensen met NAH in de chronische fase die gemotiveerd zijn om te werken, maar geen werkgever hebben. In deze sessie worden de resultaten gepresenteerd.

Fred de Laat: selectie arbeidsrevalidatie voor mensen met persisterende musculoskeletale pijn – voor wie wel en wie niet?
- Binnen Vroege Interventie (arbeidsrevalidatie in 7 revalidatiecentra) wordt al langere tijd een dataset bijgehouden. Uit deze set kan, naast het effect van deze arbeidsrevalidatie, ook worden gegenereerd welke patiënten zijn verwezen voor arbeidsrevalidatie maar hiervoor uiteindelijk niet in aanmerking kwamen. In deze sessie zullen deze resultaten worden gepresenteerd en bediscussieerd.

Ellen Roels/ Renée van Dinter: arbeidsrevalidatie en duurzame arbeidsparticipatie na dwarslaesie

- Arbeidsrevalidatie voor personen met een dwarslaesie blijft onderbelicht en arbeidsdeelname van personen met een dwarslaesie is laag. Het blijft onduidelijk wat de beste ingrediënten voor arbeidsrevalidatie zijn. De principes van supported employment (ook de basis voor IPS) lijken ook bij dwarslaesie veelbelovend. Naast de arbeidsrevalidatie verdient ook het behoud van arbeid (=duurzame arbeid) aandacht. In deze presentatie worden de resultaten gepresenteerd van een Nederlands onderzoek naar determinanten van duurzame arbeidsparticipatie bij dwarslaesie.

Michiel Reneman: duiding Zorginstituut: aandachtspunten en kansen

-

Het ZIN standpunt (2023) geeft handvatten voor inrichting van arbeidsgerichte revalidatie. In deze presentatie benoem ik kort de relevante delen van het standpunt, en ontwikkelingen in de wetenschap en de Nederlandse praktijk van revalidatie/arbeid. Binnen de Zorgverzekeringswet is het mogelijk om arbeidsgerichte MSR aan te bieden, maar niet arbeidsrevalidatie. Wij benoemen de aandachtspunten, en mogelijkheden voor samenwerking tussen ‘reguliere’ arbeidsgerichte MSR en de gespecialiseerde arbeidsrevalidatie, om te komen tot een optimale revalidatie voor alle revalidatiepatiënten.

Samenvatting sessie
60 minuten: 4 presentaties
30 minuten discussie sprekers en deelnemers. Doelstelling: verkennen mogelijkheden voor samenwerking tussen ‘reguliere’ arbeidsgerichte medisch specialistische revalidatie en de gespecialiseerde arbeidsrevalidatie om bij te dragen aan een optimale revalidatie voor alle revalidatiepatiënten.
(M.F. Reneman, Dr. F.A. de Laat, Dr. B. Sorgdrager, Drs. M.J.A. Edelaar, Dr. E.H. Roels, Prof. dr. C.A.M. van Bennekom. Revalidatie en Arbeid; ontwikkelingen, grenzen en mogelijkheden. Nederlands Tijdschrift voor Revalidatiegeneeskunde, juni 2023, 49-51.)

E7. Mini-symposium: Ankle-foot surgery in patients with neurological gait disorders

Prof Noel Keijsers[1,3], Dr Jorik Nonnekes[2], Dr. Chris Donken[1], Bente Bloks[1,2]
[1]Sint Maartenskliniek , [2]Radboudumc, [3]Radboud University

Neurological disorders are a leading cause of disability in the western world, with gait impairments presenting as a common and disabling issue among patients. Pes equinovarus deformity is one of the most important underlying motor deficits in patients with upper motor neuron lesions (e.g. stroke) and patients with hereditary motor and sensory neuropathies (HMSN). Despite the evident need, there is a relative underuse of surgical treatment options both nationally and internationally. Yet, based on our clinical observations and a previously published pilot study, surgical treatment often yields in positive outcome.

The objective of this mini-symposium is to gain knowledge on surgical treatment options. Firstly, a guideline will be presented that explains when surgical treatment can be considered as treatment option. Subsequently, range of surgical interventions for pes equinovarus deformity will be discussed. Finally, we will present the data of two studies with a repeated-measures design in individuals with stroke and HSMN. In these studies, the effect of surgical correction of pes equinovarus deformity on predefined personal goals, gait capacity (including underlying spatiotemporal, kinematic and kinetic characteristics) and daily life gait performance was investigated. During the introduction and discussion part of the mini-symposium, the audience will be engaged in the topic by interactive polls

Learning objectives are:
- Gain a clear understanding of when ankle-foot surgery may be considered in patients with neurological gait disorders.
- Familiarize oneself with the diverse surgical options available for patients with complex neurological gait disorders.
- Knowledge of the effectiveness of ankle-foot surgery on personal goals, gait capacity and gait performance

Program and presenters

[10 min] Noel Keijsers (Prof Clinical motor control, Radboud University / Sint Maartenskliniek): Chair, introduction of the topic with interactive polls.

[15 min *] Jorik Nonnekes (Rehabilitation physician, Radboudumc): Patient goals and management of gait impairments in patients with complex neurological gait impairments.

[20 min *] Chris Donken (Foot & ankle surgeon Sint Maartenskliniek): Surgical options in the treatment of Cavovarus feet in patient with complex neurological gait impairments

[15 min *] Jorik Nonnekes (Rehabilitation physician, Radboudumc) / Keijsers: Effect of surgical correction of pes equinovarus deformity on subjective gait evaluation gait perception (predefined personal goals)

[20 min *] Bente Bloks (Junior researcher, Sint Maartenskliniek): Effect of surgical correction of pes equinovarus deformity on gait capacity and daily life gait performance.

[10 min] Noel Keijsers: Discussion with interactive polls and closure.

* Includes 5 min time for questions and discussion

Depending on the audience, we will select English or Dutch

E8. Mini-symposium: Zorg voor de toekomst: 2 pilots met een vernieuwende samenwerking voor het jonge kind

Md Laura Haffmans[1], MD Jasmijn van Bemmel[1], Meriem Laamairi[2], Yvette Wols[3], Ouder Ouder[1,3]
[1]Rijndam Revalidatie, [2]Middin, [3]Enver

In de dagelijkse praktijk ervaren ouders en zorgmedewerkers dat er diverse hiaten zijn in het zorgaanbod voor jonge kinderen met problemen in hun ontwikkeling. Het ontbreekt aan passende zorg op één plek, door fragmentatie van de zorg en financieringsbeperkingen. Het aanbod vanuit revalidatie, intensieve kindzorg en jeugdhulp overlapt of sluit juist niet op elkaar aan.
In de uitgangspunten van het Integraal Zorg Akkoord (IZA) hebben Rijndam (Medisch specialistische revalidatie (MSR)), Middin (dagprogramma jonge kind, jeugdhulp) en Enver (intensieve kindzorg en jeugdhulp) kansen gezien om bovenstaande problemen aan te pakken. In 2 pilots wordt, middels een intensieve samenwerking, een nieuw geïntegreerd zorgaanbod gecreëerd voor deze jonge doelgroep.

In dit mini-symposium willen we u informeren en inspireren over de meerwaarde van deze nieuwe samenwerkingsvormen voor de betrokken gezinnen, medewerkers en organisaties en de lessen die we geleerd hebben bij het opzetten en uitvoeren van deze pilots.
Tot slot willen met u van gedachten wisselen over de kansen in de toekomst en de mogelijkheden voor uw eigen praktijk.

Het programma:

Laura Haffmans, revalidatiearts bij Rijndam zal het mini-symposium voorzitten vanuit haar rol als medisch coördinator voor het jonge kind.

Een inleiding en kijkje achter de schermen bij het opstarten van nieuwe intensieve samenwerkingen. Laura Haffmans, 10min.

Ervaringen en meerwaarde van een integraal behandel en zorgaanbod voor kinderen met een intensieve zorgvraag op een verpleegkundig kinderdagverblijf. Yvette Wols en een betrokken ouder, 20min.

"Op stap": Samen een stap verder met een integraal aanbod in ontwikkelingsstimulering voor kinderen binnen de jeugdhulp en MSR. Meriem Lamaari en Jasmijn van Bemmel, 20min.

Een blik op de toekomst, hoe verder? Kansen en mogelijkheden voor uw eigen praktijk? Een interactieve discussie met voornoemde sprekers en publiek o.l.v. Laura Haffmans, 30min.

In deze sessie willen we u stap voor stap meenemen in het proces dat we met deze 2 pilots doorlopen hebben.

In de inleiding zullen we een toelichting geven op de aanleiding en ambities om deze pilots te ontwikkelen en hoe we gestart zijn. Daarnaast zullen we ook een inkijkje geven in hoe we van deze ambities naar concrete plannen zijn gekomen en welke hobbels we hebben genomen.

Daarna zullen we in 2 presentaties dieper ingaan op de processen en ervaringen binnen de afzonderlijke pilots.

Aanleiding voor de eerste pilot is de ervaring dat bij een groot deel van de doelgroep op het verpleegkundig kinderdagverblijf de Groene Burcht ook een revalidatietherapie behoefte is. Deze kon in de praktijk niet altijd worden vervuld. Dit heeft ertoe geleid dat Rijndam met een behandelteam op locatie is gestart met als resultaat geïntegreerde zorg. In de presentatie zal dieper ingegaan worden op wat de meerwaarde en ervaringen voor ouders en kind zijn en wat het voor de Groene Burcht in bredere zin betekent heeft voor hun kwaliteit van zorg.

De tweede pilot betreft een samenwerking van Rijndam met Middin en richt zich op de doelgroep die tussen jeugdhulp en medisch specialistische revalidatie invalt. Op deze groep wordt een passend ontwikkelingsstimulering programma geboden, geïntegreerd met een therapeutisch aanbod. Het doel is uitstroom naar verschillende vormen van onderwijs. In deze sessie willen we onze ervaringen met u delen in de mogelijkheden die een dergelijke groep biedt, maar ook wat de uitdagingen onderweg geweest zijn.

Tot slot willen we met u stilstaan bij onze uiteindelijke droom: Een Integraal zorgaanbod voor alle kinderen met een ontwikkelingsuitdaging in Rotterdam en daarbuiten!

Top 10 Posters: plenary poster pitch presentation: 7 November 11.45 - 12.00 hrs.

P001. Comparing non-microprocessor controlled and microprocessor controlled prosthetic knees on all ICF-levels: a prospective cohort study – *Charlotte Bosman*

P002. Postural sway measurement using a body-worn movement sensor in clinical stroke rehabilitation: exploring sensitivity to change and responsiveness. – *Marieke Geerars*

P003. Step-by-step approach to design an evidence based intensive physical rehabilitation program for children and adolescents with acquired brain injury – *Christiaan Gmelig Meyling*

P004. Undernutrition is associated with impaired wound healing and lower quality of life in people with major dysvascular lower limb amputation – *Aniek Kolen*

P005. Nutritional care practice in ALS: perspectives from patients and healthcare professionals – *Merle Kuiper*

P006. Validity and reliability of a new method for Visual Analysis of Scapular Kinesis in children and adolescents – *Daphne Meijler*

P007. The course of anxiety symptoms in the 24 months after start of stroke rehabilitation – *Diana Oosterveer*

P008. How do people living with MND and their carers experience specialized care? Development and validation of a patient reported questionnaire – *Ann Katrin Schmidt*

P009. ABI-MOTION: An integrated active lifestyle aftercare network for individuals with acquired brain injury – *Lianne de Vries*

P010. Quality of life in neuromuscular disease: what is the role of acceptance of disease? – Gwen Sonnemans

During the congress a delegation of the scientific committee awards the Best Poster 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 poster 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)

P001

Comparing non-microprocessor controlled and microprocessor controlled prosthetic knees on all ICF-levels: a prospective cohort study

Msc Charlotte Bosman[1], Dr. (PhD) Bregje Hegeman-Seves[1], Prof. dr. (MD/PhD) Jan Geertzen[1], Dr. (MD/PhD) Behrouz Fard[2], Drs. (MD) Irene Newsum[3], Drs. (MD) Marieke Paping[4], Dr. (MD/PhD) Aline Vrieling[1], Prof. dr. (MD/PhD) Corry van der Sluis[1]
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Introduction
Use of a non-microprocessor controlled knee (NMPK) or a microprocessor controlled knee (MPK) can influence daily functioning, activities and participation.

Objective: Assess the effect of NMPKs compared to MPKs on all ICF-levels.

Patients
Adults with a transfemoral amputation or knee-disarticulation due to different aetiology non-restricted to dysvascular or traumatic causes, using an NMPK but eligible for an MPK.

Added value for patients: Insight in potential benefits of MPK use in daily life.

Methods
A baseline measurement (T0) was performed while participants used the NMPK. One week later, they received an MPK and started a six week trial period, during which they received physical therapy twice a week. In the sixth week, measurements were repeated on the MPK (T1). A combination of functional tests and questionnaires was used.

Results
Twenty-one participants (mean±SD age: 56,5±3,1 years) were included. For body functions and structures, participants showed significant improvements on balance confidence, walking confidence and safety as well as a significant decrease in number of falls at T1. For activities we found significant improvement at T1 for walking distance and self-reported ambulation abilities. Participants reported a significantly greater satisfaction with their participation and experienced fewer restrictions. Regarding environmental factors, participants reported significantly greater satisfaction with the appearance and utility of the MPK, experienced less social burden and reported better well-being.

Discussion and conclusions
Participants demonstrated significant improvement on all ICF levels when using the MPK compared to the NMPK.

Clinical message: Using an MPK can improve a person's daily life on all ICF-levels.

P002

Postural sway measurement using a body-worn movement sensor in clinical stroke rehabilitation: exploring sensitivity to change and responsiveness.

Msc Marieke Geerars[1], MSc Natasja C. Wouda, MSc Richard A.W. Felius, Prof. Dr. Anne Visser-Meily, Dr. Martijn F. Pisters, Dr. Michiel Punt

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Background

During rehabilitation, stroke survivor's balance is commonly monitored using the Berg Balance Scale (BBS) and MiniBESTest. These tests evaluate the ability to maintain balance in a upright position while performing tasks. Currently, clinical practice lacks an adequate assessment of balance impairments like the increased postural sway post stroke. Integrating postural sway measurement with a body-worn Inertial Measurement Unit (IMU) could offer clinicians an objective, and rapid measurement method.

Objective

To explore sensitivity to change and responsiveness of postural sway measurement during stroke rehabilitation.

Methods

A longitudinal study was conducted with 94 stroke survivors undergoing inpatient rehabilitation. Sensitivity to change was evaluated by comparing the percentages of participants who exceeded the Minimal Detectable Change (MDC) for both the conventional and IMU tests. Responsiveness was assessed through hypotheses testing, utilizing both a criterion approach (external criterion: a five-point retrospective Global Rating of Change score) and a construct approach.

Results

At discharge, only 3.2-23.9% of the participants showed genuine improvement (i.e., had a lower postural sway) on the IMU test, compared to 33-60% on the conventional tests. In total 67.4% of the hypotheses were rejected.

Conclusions

The sensitivity to change and responsiveness of postural sway measurement in stroke survivors are limited. Restoring balance to achieve functional independence is not necessarily dependent on, or associated with, the level of postural sway. For now, the incorporation of postural sway measurement in clinical stroke rehabilitation appears to offer no additional value to monitor balance.

P003

Step-by-step approach to design an evidence based intensive physical rehabilitation program for children and adolescents with acquired brain injury

Msc Christiaan Gmelig Meyling[1], Dr. Olaf Verschuren[1], Dr. Ingrid Rentinck[2], Drs Irene van der Steen[3], Prof. Dr. Raoul Engelbert[4], Prof. Dr. Jan Willem Gorter[5]

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Topic:
Intensity of physical rehabilitation in children and adolescents with acquired brain injury (ABI).

Relevance:
Advancements in neuroplasticity highlight the potential of high-intensive physical rehabilitation in improving physical, cognitive, and socio-emotional recovery during the subacute phase. Our research program aims to develop a high-intensive approach within the current financial structure of rehabilitation practice. Our innovative approach (REHABILITY) including transdisciplinary collaboration and parental involvement, can enhance recovery outcomes for children with ABI and presents opportunities for rehabilitation medicine.

Current Status:
In the first phase, we established a foundation through a comprehensive literature review, an international expert consensus study, and qualitative research involving patients and their families. Subsequently, we developed a consensus-based framework to design an intensive physical rehabilitation program of 3-5 hours physical activity per day. Principles of neuroplasticity with increased dosage of practice (frequency, intensity, time and type) in meaningful activities, and involvement of parents and siblings are essential components of this novel program (phase 2). The REHABILITY program, including systematic outcome measures, is currently being studied in a pilot study for its feasibility (phase 3) Preliminary results are promising in terms of feasibility, safety and rehabilitation outcomes.

Plan of action:
The developed program, grounded in evidence and expert consensus, represents a promising advancement towards achieving optimal rehabilitation outcomes. The pilot study's outcomes will guide further refinement and nationwide implementation of the program. We aim to establish this intensive physical rehabilitation as a standard practice in The Netherlands to optimize recovery and participation for children and adolescents with ABI.

P004

Undernutrition is associated with impaired wound healing and lower quality of life in people with major dysvascular lower limb amputation

Aniek Kolen[1], Dr. Leonie Krops[1], Prof. Dr. Harriët Jager-Wittenaar[2,3,4], Prof. Dr. Jean-Paul de Vries[5], Dr. Martijn Dijkstra[5], Prof. Dr. Rienk Dekker[1], Prof. Dr. Jan Geertzen[1]

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Introduction: People with a major dysvascular lower limb amputation (LLA) have high risk for adverse outcomes, which may be related to undernutrition.

Objective: To determine prevalence of undernutrition, and its association with clinical outcomes after LLA.

Patients: Adults with a major dysvascular LLA.

Added value for patients: This study determines if nutritional interventions are needed to optimize outcomes after LLA.

Methods:|
In this ongoing longitudinal observational study, adults with major dysvascular LLA were included in six Dutch hospitals (n=81). Participants' nutritional status (Patient-Generated Subjective Global Assessment) was determined at <12 days, 5 weeks, 6 and 9 months post-LLA. Quality of life (WHOQoL-BREF) and survival were assessed at 5 weeks, 6 and 9 months, wound healing at 5 weeks, and physical functioning (k-level, 6-minute walk/roll test) at 6 and 9 months post-LLA. The association between undernutrition and QoL was examined by Kruskal-Wallis test, and the association between undernutrition and impaired wound healing was assessed by chi-square test.

Results: Forty-six percent was moderately/suspected undernourished and 38% severely undernourished <12 days post-LLA. At 5 weeks post-LLA, 49% had moderate/suspected undernutrition and 9% was severely undernourished. The degree of undernutrition was negatively related to physical, psychological, and environmental quality of life ($p \leq 0.016$; n=67). Forty-four percent had impaired wound healing, which was negatively related to undernutrition ($p=0.021$; n=71).

Discussion and conclusions: Undernutrition is highly prevalent and related to poorer clinical outcomes post-LLA. These findings call for nutritional interventions to prevent or timely treat undernutrition.

Clinical message: Undernutrition is worrisome in people with major dysvascular LLA.

P005

Nutritional care practice in ALS: perspectives from patients and healthcare professionals

Drs. Merle Kuiper[1,2], MD, PhD Willeke Kruithof[1,2], dr. Anita Beelen[1,2], - Nicole Broekman-Peters[3], - Dea Schröder[4], prof. dr. Anne Visser-Meilij[1,2]
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Introduction: People with ALS, PMA and PLS (ALS) face challenges taking adequate nutrition. A lack of guidance on nutritional management for healthcare professionals (HCPs) may cause (unwarranted) practice variation.

Objective
To map nutritional care provided to ALS patients and identify needs and challenges experienced by patients and HCPs.

Participants: Patients with ALS and HCPs of 36 certified ALS care teams in the Netherlands.

Methods
Two cross-sectional surveys addressing current nutritional management for patients with ALS in the Netherlands were sent to patients with ALS and HCPs. Topics of the surveys were: organization of nutritional care, methods to monitor the nutritional status, nutritional advice and needs/challenges experienced.

Results
In total, 372 patients and 100 HCPs responded. Fifty percent of patients had contact with a dietitian, 7% indicated body composition was measured and 25% reported never being weighed. Dietitian responses (N=36) showed that 28% utilized malnutrition screening tools and 17% measured body composition. Almost all dietitians used predictive equations to estimate energy and protein requirements.

Patients and HCPs highlighted the need for comprehensive, up-to-date information on ALS and nutrition, national consensus on nutritional advice and monitoring methods, patient information materials, education for HCPs and personalized nutritional advice for ALS patients.

Discussion/conclusion
Unwarranted practice variation was observed in nutritional advices and the assessment and monitoring of nutritional status. Further research and national consensus on nutritional advice and monitoring is required.

Clinical message: Enhanced guidance for HCPs is crucial to improve nutritional care for ALS patients.

P006

Validity and reliability of a new method for Visual Analysis of Scapular Kinesis in children and adolescents

Dr. Daphne Meijler[1], Maaike Pelsma[1], Jos IJspeert[2], Lieze Hoogveld[1], Hilde Braakman[3], Dr Saskia Houwen[1]

[1]Department of Rehabilitation, Donders Institute for Brain, Cognition and Behaviour, Radboud university medical center, Amalia Children's Hospital, Nijmegen, the Netherlands, [2]Department of Rehabilitation, Donders Institute for Brain, Cognition and Behaviour, Radboud university medical center, Nijmegen, the Netherlands., [3]Department of Paediatric Neurology, Donders Institute for Brain, Cognition and Behavior, Radboud university medical center, Amalia Children's Hospital, Nijmegen, the Netherlands.

Introduction/Aims: We introduce a newly developed diagnostic instrument for scapular dyskinesis, the visual analysis of scapular kinesis (VASK). The VASK combines the “Yes/No” method with a scoring system of scapular kinesis. The aim of this study was to determine the intra- and interobserver reliability and the known-group validity of the VASK between experienced and non-experienced clinicians in detecting scapular dyskinesis in children and adolescents with a neuromuscular disorder and healthy peers.

Methods: 50 participants with neuromuscular disorder and 52 healthy participants, aged 8-18 years, were evaluated with the VASK by 2 experienced and 3 non-experienced raters independently. Percentage of agreement and kappa coefficients were calculated to determine reliability. The differences in total VASK score between healthy children and adolescents and those with a neuromuscular disorder were used to determine the known-group validity.

Results: For the “Yes/No” method, we found substantial intra-observer reliability and moderate interobserver reliability with κ values of 0.73 and 0.50, respectively. For the VASK score, intra-observer reliability showed good agreement with ICC values of 0.84 (left) and 0.89 (right). Interobserver reliability showed moderate agreement with ICC values of 0.60 (left) and 0.67 (right). Importantly, we demonstrated known group validity of the VASK.

Discussion: VASK provides detailed information about scapular motor control that can be used for effective treatment strategies tailored to patient’s individual needs. With satisfactory intra -and interobserver reliability, especially when used by experienced physicians, it is the first visual-based scapular kinesis assessment method that demonstrated construct validity (known-group validity).

P007

The course of anxiety symptoms in the 24 months after start of stroke rehabilitation

Desi Stokman-Meiland[3], Dr. Diana Oosterveer[1,2], Aleid de Rooij[3], Dr. Henk Arwert[4,5], Dr. Jorit Meesters[5,6], Prof. dr. Thea Vliet Vlieland[3,7]
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Introduction: Although anxiety is common post-stroke and has a negative impact, anxiety symptoms might be underdiagnosed and undertreated.

Objective: To describe the course of anxiety symptoms post-stroke, and its relation with psychological care and unmet needs.

Patients: Patients with stroke who received inpatient or outpatient stroke rehabilitation.

Methods: Patients completed the Hospital Anxiety and Depression Scale (HADS) at 3, 6, 12 and 24 months after start of rehabilitation; 1 item about psychological care; and the Longer-Term Unmet Needs after Stroke. Chi Square and Kruskal Wallis tests were used to compare patients within three different trajectories of anxiety symptoms based on the HADS anxiety subscale: no (all times <8), non-consistent (one to three times ≥8) or persistent (all times ≥8) anxiety symptoms.

Results: 690 patients were included (37.7% females, median age 62 years). At 3, 6, 12 and 24 months after baseline, 136/612 (22.2%), 129/586 (22.0%), 125/548 (22.8%) and 96/487 (19.7%) patients reported anxiety symptoms, respectively. There were 248/384 (64.6%) patients with no anxiety symptoms, 97/384 (25.3%) with non-consistent anxiety symptoms, and 39/348 (10.2%) with persistent anxiety symptoms. A minority of patients with non-consistent or persistent anxiety symptoms had psychological care. They had more unmet needs and more often an unmet need related to mood.

Conclusions: The prevalence of post-stroke anxiety symptoms remains around 20%. Persistent anxiety symptoms were found in 10.2% with only a minority receiving psychological care.

Clinical message and added value for patients: Optimization of screening for and treatment of anxiety symptoms seems of value.

P008

Quality of Life of the Dutch population of people living with MND evaluated with the PROMIS-10 Global Health

Msc Ann Katrin Schmidt[1,2], MD Joris de Graaf[1,2], PhD Anita Beelen[1,2], PhD Ying Lu[3], MD, PhD Anne Visser-Meily[1,2], MD, PhD Leonard van den Berg[4], MD, PhD Ruben van Eijk[4,5]
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Background: Quality of Life (QoL) is a frequently used outcome for persons living with motor neuron disease (pMND). Elements of QoL are often not distinguished. We compared mental and physical QoL of pMND, with the PROMIS-10 Global Health (PROMIS-GH), with those of the Dutch reference population.

Methods: We sent an online survey including the PROMIS-GH, to pMND of a population-based registry. We compared T-scores on Mental Health (PROMIS-MH) and Physical Health (PROMIS-PH) subscales of the sample and of subgroups based on diagnosis and disease stage with the reference population using two-sample t-tests (alpha 5%).

Results: In total, 422 pMND (response rate: 63.8%) completed the PROMIS-GH. The sample was representative with 66% males, 60% ALS, 17% PMA, and 23% PLS, a median disease duration of 54 months (P25-P75: 28-114 months), and disease severity (ALSFRS-R median 35, range: 1-48).
The MND-sample had a mean (SD) PROMIS-MH of 44.0 (7.6) and PROMIS-PH of 39.4 (7.8). We found no significant difference with the reference population in PROMIS-MH (mean difference (MD) 0.7, 95%CI -0.1-1.5, p=0.086), except for severely affected pMND (stage 4: MD 2.4, 95%CI 0.86-3.94, p=0.003). PROMIS-PH was significantly reduced (MD 5.8, 95%CI 4.89-6.71, p<0.001), only for mild disease severity no significant difference was found (stage 1: MD -0.3, 95%CI -2.33-1.73, p=0.77).

Conclusion: We showed that physical and mental QoL are differentially affected in pMND. Interestingly, mental health is preserved up to a severely affected disease stage. We recommend to emphasize mental health in clinical care and trials.

P009

ABI-MOTION: An integrated active lifestyle aftercare network for individuals with acquired brain injury – Lianne de Vries

MSc Lianne De Vries[1], MD, PhD Erik Grauwmeijer[1,2], PhD Erwin Ista[3,4], Prof. dr. Jane M Cramm[5], Prof. dr. Anna P Nieboer[5], Prof. dr. MD Gerard M Ribbers[1,2], PhD Rita JG van den Berg-Emons[1], PhD Majanka H Heijenbrok-Kal[1,2]
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Topic: Despite rehabilitation efforts, individuals with ABI struggle with sustaining a physically active lifestyle after outpatient rehabilitation discharge. Community-based services can support individuals with ABI in adopting an active lifestyle, but their involvement is not standard practice. The ABI-MOTION study focusses on this rehabilitation innovation issue, by creating and evaluating a network between outpatient rehabilitation and community-based services to enhance physical behavior.

Relevance: The ABI-MOTION network offers an innovative, sustainable and accessible approach for aftercare in the critical phase after outpatient rehabilitation, making it relevant for the rehabilitation community. Individuals with ABI have expressed a need for long-term (after)care close to home, including guidance on a physically active lifestyle. The ABI-MOTION network addresses these needs, probably providing added value for patients.

Current status: Network meetings with Rijndam Rehabilitation and MEE Rotterdam Rijnmond (SportMEE) have been conducted, which resulted in the establishment of the network and procedures. Therapists and physicians of Rijndam and other network partners have been informed about the network through multiple information and discussion sessions. A user committee meeting has been organized and study inclusion has started.
Plan of action: The next steps involve a process-evaluation study using the RE-AIM (Reach, Effectiveness, Adoption, Implementation, Maintenance) framework. Four groups of individuals with ABI will be included consecutively, allowing iterative evaluation and optimization of the network. Data will be collected through routine measures, and focus groups and interviews with patients, therapists, and network partners. To enhance actual implementation and scaling of the network, user and stakeholder meetings will be held.

P010

Quality of life in neuromuscular disease: what is the role of acceptance of disease?

Drs. Gwen Sonnemans[1,2], Dr A. Beelen[1,2], Dr. E.T. Kruitwagen - van Reenen[1,2], Dr. W.J. Kruithof[1,2], Prof. Dr. J.A.M. Visser-Meily[1,2], Dr. M.P.J. Sommers-Spijkerman[1,2]
[1]Department of Rehabilitation, Physical Therapy Science and Sports, Brain Center, University Medical Center Utrecht, [2]Center of Excellence for Rehabilitation Medicine, Brain Center, University Medical Center Utrecht, and De Hoogstraat Rehabilitation

Introduction: Neuromuscular disorders (NMD) can have a significant impact on patients' quality of life (QoL). Research has shown that not only the disease and its physical impact but also psychological factors, such as disease acceptance, can influence QoL.

Objective: The purpose of this study is to gain insight into the role of disease acceptance in the perceived physical and mental QoL of NMD patients.

Methods: A cross-sectional survey study was conducted among a heterogeneous group of 261 adult patients with NMD (40 different diagnoses) in a tertiary care hospital. Four stage multivariable linear regression analyses (method enter) were conducted to assess associations of disease acceptance with mental as well as physical QoL (outcomes), adjusting for socio-demographic (age, gender, level of education), clinical (dependency in activities of daily living, wheelchair dependency) and psychological factors (mental comorbidities, self-esteem, self-compassion, self-criticism).

Results: Our findings showed a significant, positive association of disease acceptance with both mental and physical QoL. Associations remained significant after controlling for social-demographic, clinical and psychological variables, but were weakened when adjusted for psychological variables.

Discussion and conclusion: Higher levels of disease acceptance were associated with a higher QoL. This implies that disease acceptance may have an important role in optimizing QoL in NMD.

Clinical message: Disease acceptance may enable NMD patients to maintain or optimize QoL and therefore deserves attention from healthcare professionals.

Poster Thursday 7 November (ODD poster numbers)

P011. Assessing and categorizing health-related quality of life outcomes in children and youth with acquired brain injury in outpatient rehabilitation – *Florian Allonsius*

P013. Exploring cancer rehabilitation populations and rehabilitation-related outcomes at Rijndam and Revant Rehabilitation – *Petra Boelens*

P015. Interdisciplinary cancer rehabilitation differences between Rijndam locations: variation in guideline adherence in relation to clinical outcome – *Petra Boelens*

P017. Cognitive assessment following subarachnoid hemorrhage: Comparing Vienna Test Systems to standard neuropsychological tests and exploring the influence of sensory hypersensitivity – *Céline Didderen*

P019. Specialized lower limb orthotic care to improve functioning in adults with neuromuscular disorders: results of a randomized controlled trial – *Elza van Duijnhoven*

P021. Long-term outcomes after Early Intensive Neurorehabilitation for patients with Prolonged Disorders of Consciousness: a prospective cohort study – *Daniëlle Driessen*

P023. Shared or guided decision-making in the clinical immunology practice? A matter of personalization! – *Tessa Folkertsma*

P025. Feasibility of an intensive physical rehabilitation program (REHABILITY) for children and adolescents with acquired brain injury – *Christiaan Gmelig Meyling*

P027. Home-based exergaming to enhance resistance to falls after stroke (HEROES): proof-of-principle protocol – *Lotte Hagedoorn*

P029. The use of a simplified 3D-foot model to identify equinovarus: a case-study – *Ruth Huurneman*

P031. Multidimensional measurements of dysarthria in Myotonic Dystrophy type 1 – *Simone Knuijt*

P033. The Association between Energy Cost of Walking and Physical Activity in Ambulatory People with Spinal Cord Injury – *Marthe Langerwerf*

P035. Comparison of PROMIS® CAT Profile scores of stroke patients in a hospital and rehabilitation setting – *Winke van Meijeren-Pont*

P037. Evaluation of Compensation Strategies During Turns for Gait Impairments in Patients with Parkinson's Disease – *Bert van Meirhaeghe*

P039. Unraveling neuropathic pain: exploring mechanisms in spinal cord injury – *Hannah Mesters*

P041. Vocational Rehabilitation for Patients with Post COVID-19 to Improve Quality of Life, Physical Function, and Return to Work – *Sophie Oberink*

P043. Understanding the experiences of sleep and physical activity in adults with cerebral palsy: A qualitative exploration – *Ilse van Rijssen*

P045. Application of learning strategies by children with DCD and their parents

at home – *Heleen Reinders-Messelink*
P047. Energy cost for activities of daily living in persons with lower limb amputation; a pilot study – *Loeke van Schaik*
P049. Integrating Personalized Physical Activity Promotion in Stroke Rehabilitation: Roles, Barriers, and Opportunities for Multidisciplinary Teams – *Lisenka te Lindert*
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P020. Spasticity in patients with prolonged disorder of consciousness; a large single-centre prospective cohort study – Nathalie Draulans
P022. What impedes us makes us stronger: the effect of impeding forces on body weight supported gait after stroke – Sanne Ettema
P024. Implementation of personalized aerobic and resistance training during rehabilitation of patients with physical impairments: FITopMAAT – Karin Gerrits
P026. Exploring best suitable patient/parent-reported-outcome-measures (PROMs) to study fatigue, participation and quality of life in young patients with acquired brain injury – Menno van der Holst
P028. The Effects of Neurovisual Rehabilitation – results of nationwide PREMs and PROMs research in the Netherlands – Joost Heutink
P030. The desires and experiences for individuals with physical disabilities in the field of adaptive gaming – Ties Klok
P032. Nocturnal blood pressure dipping and blood pressure variability in individuals with motor incomplete spinal cord injury during primary

rehabilitation – Nelleke Langerak
P034. OPTIC trial: participation outcomes following induction treatment in persons with CIDP – Johan Lim
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P040. Measurement of Outcomes of Rehabilitation in the Netherlands (MUREVAN): interim results of a multicentre prospective cohort study – Bianca Mourits
P042. Gait features in children with hereditary spastic paraplegia compared to cerebral palsy – Anke Pons
P044. The 24-hour physical activities in adults with cerebral palsy and their adherence to the 24-hour movement guideline – Ilse van Rijssen
P046. Values for cardiorespiratory fitness in persons with lower limb amputation – Loeke van Schaik
P048. Technique selection in transfemoral amputation surgery – an interview study among surgeons – Reslin Schelhaas
P050. Relying on the external world: uncovering individual strategies in working memory usage after stroke – Teuni ten Brink
P052. Participants' experiences of Phantom Motor Imagery treatment to decrease phantom limb pain and the consequences on their daily functioning – Joanna van Veldhoven
P054. Older stroke patients also recover well during inpatient rehabilitation – Natasja Wouda

Poster P011 – P055

P011

Assessing and categorizing health-related quality of life outcomes in children and youth with acquired brain injury in outpatient rehabilitation

MSc Florian Allonsius[1,2], **Celine de Mooij**[1], dr. Arend de Kloet[1], dr. Frederike van Markus-Doornbosch[1], dr. Menno van der Holst[1,2]
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Introduction: A diminished health-related quality of life (HRQoL) is commonly reported among young patients with acquired brain injury (ABI). However, a clear way to categorize and interpret HRQoL-severity to better target and evaluate HRQoL is lacking.

Objective: Assessing and categorizing HRQoL-severity in young patients with ABI referred for outpatient rehabilitation.

Patients/added value: Children(8-12yr), adolescents(13-17yr) and young adults(18-25yr) with ABI in the rehabilitation setting. Assessing/categorizing HRQoL-severity upon admission can enhance targeting and evaluating HRQoL in these young patients.

Methods: This cross-sectional study used the PedsQL™Generic Core Scales-4.0 questionnaire to assess patients' HRQoL (23-items, lower scores=more diminished HRQoL). Patient characteristics and mean(SD) HRQoL-scores were calculated per group using descriptive statistics and were categorized using the means(SDs) of reference data from healthy peers. HRQoL was categorized as; 1"better HRQoL compared to healthy peers"= >+1SD, 2"comparable HRQoL"= -1SD to+1SD, 3"moderately diminished HRQoL"= -1SD to-2SD, 4"severely diminished HRQoL"= >-2SD.

Results: Data from 426 young patients with ABI were used. There were 233 female patients (54.7%), 334 had TBI (78.4%) and 92 had nTBI (21.6%.) Young patients with ABI reported considerably low HRQoL-scores in all age-groups with means ranging from 59.34(SD18.46) to 62.98(SD14.39) per age-group. Most patients with ABI fell into the category "severely diminished HRQoL" compared to healthy peers.

Discussion/conclusions: Categorizing HRQoL-severity looks promising for clinical practice and showed that many patients scored in the category 'severely diminished' compared to healthy peers.

Clinical message: Measuring and categorizing HRQoL-severity could help to better target and evaluate HRQoL in young patients with ABI during rehabilitation treatment.

P012

Mixed reality patient education during spinal cord injury rehabilitation: an evaluation study of feasibility and learning effects

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Introduction
The neurological consequences of spinal cord injury (SCI) are complex. Patients require effective education about SCI and secondary conditions like neurogenic bladder and bowel dysfunction to improve self-management and long-term health. Mixed Reality (MR) is a promising technology for patient education, due to interactive three-dimensional visuals, and multi-sensory learning stimuli. We developed MR education modules for SCI, covering neurological consequences and management of neurogenic bladder and bowel dysfunction. This study addresses feasibility and learning effects.

Methods
We assessed feasibility and learning effects through questionnaires and semi-structured interviews with recently diagnosed SCI inpatients. Feasibility was measured with: the System Usability Scale (SUS, threshold >68), a user-satisfaction numerical rating scale (NRS, threshold >7), and the Intrinsic Motivation Inventory (IMI, threshold >35). Learning effects were evaluated by comparing subjective SCI knowledge (0-88 scale) and knowledge satisfaction NRS (0-10 scale) before and after MR module use.

Results
Data from 7 participants showed positive usability (SUS median 72.5), user-satisfaction (median 8), and intrinsic motivation (median 42), confirming feasibility. Subjective knowledge (median 46 before, 69 after), satisfaction with SCI knowledge (median NRS 6 before, 8 after) and satisfaction with bladder knowledge (median NRS 5 before, 8 after) improved significantly. Interviews with three participants highlighted advantages of MR, for example visualisation, better sustained attention and multi-sensory learning stimuli, with suggestions for usability and implementation improvements.

Conclusions
This MR patient education proved feasible and enhanced learning. It might be a promising tool for SCI patient education and could improve self-management.

P013

Exploring cancer rehabilitation populations and rehabilitation-related outcomes at Rijndam and Revant Rehabilitation

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With an anticipated increase in cancer incidence, the aftermath of treatments often leaves patients with complex, life-changing conditions. The Dutch guidelines for cancer rehabilitation (CR) aim to improve activities and participation through interdisciplinary outpatient care. This study explores the population demographics and rehabilitation-related outcomes (fatigue and quality of life) in two centers: Rijndam and Revant Rehabilitation. This study provides insights of cancer rehabilitation programs, helping to optimize patient care. Prospective data from consenting patients (2020–2023) were retrospectively analyzed. A total of 333 patients were included (57 males and 276 females; 53.1±11.4 years of age) (Rijndam N = 218, Revant N = 115). 79.7 percent of the population underwent surgery before CR, 80.5 percent chemotherapy, and 64.9 percent radiotherapy. The mean distress thermometer (lastmeter) at the start of CR was 6.8±1.8. The average duration of CR treatment was 16.8 ±7.3 weeks. While patient populations between the two centers were similar in age, percentage prior to chemotherapy, and lastmeter. The population differed in terms of gender, prior surgery, and radiotherapy. The Multidimensional Fatigue Inventory (MFI)-20 showed significantly lower fatigue scores at the end of CR in both centers. Significant improvements were also observed in quality-of-life scales (EORTC-QLQ-C30). There were no significant differences between the two centers in the pre- and post-aanalysis of rehabilitation-related outcomes. In conclusion, exploring cancer rehabilitation practices in the two centers showed that they were effective in improving predefined outcomes of fatigue and quality of life significantly at the completion of cancer rehabilitation, despite differences in the populations.

P014

Interdisciplinary rehabilitation can improve cancer-related fatigue in population of Klimmendaal rehabilitation, preliminary results of a pre-post analysis

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Introduction

Most common health complain after oncological treatments is cancer-related fatigue. Future perspectives comprise increasing number of cancer survivors. Our outpatient interdisciplinary cancer rehabilitation (OICR) guideline aims at improving patients functioning by reducing the burden of cancer related fatigue.

Objective

To study cancer-related fatigue before and after OICR according to the Dutch guideline in a population of Klimmendaal rehabilitation.

Patients

Included patients were diagnosed with cancer and participated in a cancer-rehabilitation program at Klimmendaal Rehabilitation (2021-2022).

Added value for patients

Compensation by insurance of survivorship rehabilitation.

Methods

Data from the Multidimensional Fatigue Inventory (MFI)-20 and the Fatigue Symptom Scale of the EORTC-C30 (European Organisation for Research and Treatment of Cancer) were analyzed to evaluate fatigue over time, using paired sample t-test or related-sample Wilcoxon signed-rank tests, depending on the distribution (SPSS 23).

Results

Of a total of 47 eligible patients were invited to participate in the retrospective study. Pre-post analysis of the MFI-20 scores in 30 patients showed improvement in the 3 subscales of more than 2 points (being the minimally clinical important difference) ($p<0.05$). Total MFI-20 score improved significantly at the group level (change 15,1, p=0,000), which is also clinically relevant. The fatigue scale of the EORTC reduced with 20 points clinically relevant over time ($p<0.000$).

Discussion and conclusions

Interdisciplinary cancer rehabilitation at Klimmendaal improved cancer-related fatigue as measured in this pre-post analysis. More research is needed to study effectiveness.

Clinical message

Cancer rehabilitation can improve cancer-related fatigue as measured by the questionnaires prescribed in the Dutch guideline.

P015

Interdisciplinary cancer rehabilitation differences between Rijndam locations: variation in guideline adherence in relation to clinical outcome

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Introduction: Cancer treatments generally have life-changing consequences. Interdisciplinary cancer rehabilitation (ICR) according to Dutch guidelines aims at improving quality of life by coping and reducing cancer related symptoms.
Recent evaluation of Rijndam Rehabilitation cohortdata showed statistically significant and clinically relevant improved role functioning and fatigue after ICR.

Objective: To explore differences in approach of the guideline for ICR between Rijndam locations.

Patients included were diagnosed with cancer and participated in ICR (2021-2023), based on informed consent.

Standard care data was aggregated from different Rijndam locations (n= 101 versus n=117). Several patient characteristics, tests, Multidimensional Fatigue Inventory (MFI)-20 and European Organisation for Research and Treatment of Cancer (EORTC-QLQ-c30-RF) were analysed.

Stepped care was different between locations (p=0.000). More palliative patients entered the program in the North (p=0.010). At entry no location differences were seen for most characteristics and tests.
Patients from all locations showed improvements in 5 subscales of more than 2 points (i.e. minimally clinical important difference) (p<0.001). MFI-20 scores at T0 were different in subscale physical fatigue between the locations (17(SD 5) versus 15 (SD 4) (p=0.026).

In conclusion, ICR can be done with local differences in approach, and still result in significant and relevant improvement of outcomes that are of value to the patients, as defined in the Dutch guideline.

Further analyses are planned on relating outcome to the treatment input, as well as some financial information.

Cancer rehabilitation can improve consequences of cancer by applying the Dutch guideline with some difference in clinical approach.

P016

Amitriptyline 10% Cream for Neuropathic Pain in Spinal Cord Injury: a Pilot Using Time Series Analysis of Single Cases

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Introduction: Amitriptyline 10% cream is a novel treatment that can be prescribed for neuropathic pain. In rehabilitation center De Hoogstraat, amitriptyline 10% cream is considered for patients who have neuropathic pain localized on a small part of the body.

Objective: To evaluate the effectiveness of amitriptyline 10% cream for neuropathic pain in people with spinal cord injury (SCI).
Patients: Inpatients with SCI admitted to inpatient rehabilitation at rehabilitation center De Hoogstraat.

Methods: Observational study including participants who were prescribed amitriptyline 10% cream for neuropathic pain. A pain diary was kept for two weeks and pain questionnaires were administered at the beginning and at the end of the study. Percentage of time where clinically relevant pain relief occured, was calculated.

Results: A total of seven participants were included in the study. Of those seven, five participants completed the study. Three reported a clinically relevant decrease in pain, where time-series analysis showed a clinically relevant pain relief for ≥48.6% of the time.

Conclusion: The results of this study suggest that amitriptyline 10% cream can be effective in treating neuropathic pain in SCI. It is useful to further examine this effectiveness in controlled studies.

P017

Cognitive assessment following subarachnoid hemorrhage: Comparing Vienna Test Systems to standard neuropsychological tests and exploring the influence of sensory hypersensitivity

Bsc Céline Didderen[1], MD PhD J.A. De Graaf[1], Prof. J.M.A. Visser-Meily[1], PhD A.F.T. Ten Brink[1]
[1]UMC Utrecht

Introduction: A substantial proportion of patients surviving a subarachnoid hemorrhage (SAH) experience persistent cognitive consequences including mental slowness, reduced attention, and sensory hypersensitivity. Neuropsychological tests are conducted in a distraction-free setting, potentially leaving cognitive deficits in more dynamic situations undetected. In the Determination Test of Vienna Test Systems (VTS) patients must provide responses to alternating auditory and visual stimuli under great time pressure, for a relatively long time period (8 minutes). Sustained attention, mental speed, and cognitive flexibility are needed simultaneously, mimicking daily dynamic life situations.

Research question: This study aims to investigate the added value of the VTS by investigating its feasibility and validity in a clinical context.

Trial design/patients and methods: A control group (N=75) and patient group (N>50) will be compared on performance on the VTS, Trail-Making Test, and MESSY questionnaire for sensory hypersensitivity. Furthermore, the control group will provide normative data for the VTS. Data collection has been completed and analysis is expected to be finished at the end of July.

Added value for patients: A large group of patients with cognitive complaints but no confirmed cognitive deficits often feel misunderstood. Having a better understanding of the underlying mechanisms of experienced problems, which can be explained to the patient, adds value to the rehabilitation plan and ultimately leads to better societal participation after SAH.

Expected contribution to research and clinical practice: This study will provide normative data for performance on the VTS, and a better understanding of the differences between the patient- and control group.

P018

Radial Extracorporal shockwave therapy as treatment of spasticity in patients with prolonged disorders of consciousness: a research protocol

MD Nathalie Draulans[1], PhD Cecile Utens[1], Prof. Thibaut, PhD Aurore Thibaut[2]
[1]Libra Revalidatie & Audiologie, [2]Coma Science group, University & University Hospital of Liege

Introduction

Little is known about spasticity in patients with prolonged disorder of consciousness (PDOC). In the Netherlands early intensive neurorehabilitation (EIN) for these patients is centralized in one centre. This allowed prospective, systematic registration of various outcomes.

Objectives

To determine the prevalence and severity of spasticity and associations with patients characteristics.

Patients

All patients with PDOC due to traumatic and non-traumatic acquired brain injury who receive EIN and are aged ≥16 years are included.

Added value for patients

A better understanding of spasticity in PDOC patients will lead to better prevention and treatment.

Methods

At start EIN (T1) and week 14, end of EIN (T2) patient and clinical characteristics were assessed. Spasticity of 7 muscle groups was examined using the MAS.

Results

129 patients were included, median time since injury (TSI) 64 days.
There was no association between prevalence of spasticity and TSI, type of injury or level of consciousness at T1. There only was an association with older age.
The severity of spasticity in UL was significantly lower in the group that did not complete 14 weeks of EIN due to recovery of consciousness.

Discussion and conclusion

This study consists of the largest PDOC-population this early after TSI ever published and is unique as prospective cohort with a very low inclusion bias.
We found lower percentages of spasticity and severe spasticity in our population than in previous studies.

Clinical message

Prevalence of spasticity in PDOC patients is high and increases with age.
Severity of spasticity increases even during EIN.

P019

Specialized lower limb orthotic care to improve functioning in adults with neuromuscular disorders: results of a randomized controlled trial

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Introduction: Guideline-based provision of lower limb orthoses in expert settings (i.e. specialized orthotic care) may improve treatment outcomes by better matching the orthotic properties to address walking problems in neuromuscular disorders (NMD).

Objective: We assessed (cost-)effectiveness of specialized orthotic care compared to usual orthotic care on functioning.

Patients: Adults with plantarflexor and/or quadriceps weakness due to NMD with an orthosis indication.

Added value for patients: Specialized orthotic care is effective in enhancing functioning of adults with NMD.

Methods
In this randomized controlled trial with an economic evaluation, participants were randomly assigned to specialized orthotic care (n=31), or usual orthotic care (n=30). Primary endpoints were personal goal attainment (at +24 weeks), and walking energy cost (change from baseline to +24 weeks). Secondary endpoints included comfortable walking speed, gait biomechanics, stability, perceived physical functioning, (fear of) falling, fatigue and satisfaction.

Results
Personal goal attainment was significantly higher for specialized orthotic care, p=0.011. Walking energy cost did not differ between groups (p=0.140), but decreased significantly with -11.8% (-0.55J/kg/m; 95%CI: -0.99 to -0.11) following specialized, but not following usual orthotic care. Secondarily, changes in step length, walking speed, physical functioning, and orthosis satisfaction were in favor of specialized orthotic care (p≤0.042). Specialized orthotic care was likely cost-effective from a societal and healthcare perspective.

Discussion: Specialized orthotic care was more effective in attaining personal goals and improving functioning, and likely cost-effective compared to usual orthotic care.

Clinical message
Centralizing specialized orthotic care in expert centers could enhance functioning in NMD and lead to cost savings.

P020

Spasticity in patients with prolonged disorder of consciousness; a large single-centre prospective cohort study

MD Nathalie Draulans[1], PhD Cecile Utens[1], Prof. Thibaut, PhD Aurore Thibaut[2]
[1]Libra Revalidatie & Audiologie, [2]Coma Science group, University & University Hospital of Liege

Introduction
Little is known about spasticity in patients with prolonged disorder of consciousness (PDOC). In the Netherlands early intensive neurorehabilitation (EIN) for these patients is centralized in one centre. This allowed prospective, systematic registration of various outcomes.

Objectives
To determine the prevalence and severity of spasticity and associations with patients characteristics.

Patients
All patients with PDOC due to traumatic and non-traumatic acquired brain injury who receive EIN and are aged ≥16 years are included.

Added value for patients
A better understanding of spasticity in PDOC patients will lead to better prevention and treatment.

Methods
At start EIN (T1) and week 14, end of EIN (T2) patient and clinical characteristics were assessed. Spasticity of 7 muscle groups was examined using the MAS.

Results
129 patients were included, median time since injury (TSI) 64 days.
There was no association between prevalence of spasticity and TSI, type of injury or level of consciousness at T1. There only was an association with older age.
The severity of spasticity in UL was significantly lower in the group that did not complete 14 weeks of EIN due to recovery of consciousness.

Discussion and conclusion
This study consists of the largest PDOC-population this early after TSI ever published and is unique as prospective cohort with a very low inclusion bias.
We found lower percentages of spasticity and severe spasticity in our population than in previous studies.

Clinical message
Prevalence of spasticity in PDOC patients is high and increases with age.
Severity of spasticity increases even during EIN.

P021

Long-term outcomes after Early Intensive Neurorehabilitation for patients with Prolonged Disorders of Consciousness: a prospective cohort study

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Introduction
Early intensive neurorehabilitation (EIN) for adult patients with prolonged disorders of consciousness (PDOC) is recommended to ensure the best possible outcomes. However, long-term outcomes after EIN are unknown.

Objective
To describe the long-term outcomes after discharge of EIN regarding:
- level of consciousness
- level of functioning.

Patients
129 PDOC-patients with mean age 38 (SD 16.4) years and 56% with a traumatic etiology.

Methods
Single-center prospective cohort study. Outcome measurements: Coma Recovery Scale-Revised and Functional Independence Measurement (FIM) at admittance and discharge of EIN, at week 28 and 40, and after 1 and 2 years.

Results
During the 14-week Dutch EIN programme nearly 50% of patients regained consciousness and after EIN, another 24 patients (20%). Of the patients who regained consciousness during EIN, depending on the various FIM domains, 45-80% were functioning independently after 2 years, and 25-30% of patients who regained consciousness after EIN. The largest improvement in FIM scores was found between discharge EIN and 28 weeks of follow-up.

Discussion and conclusion
Most gains occur in the first 6 months after admittance to EIN. A better level of functioning is found for patients who regain consciousness during EIN in comparison to those who regain consciousness after EIN.

Clinical message
EIN is useful for the recovery of PDOC-patients. Also after EIN, PDOC-patients need adequate rehabilitation, because functional recovery occurs mostly after EIN, which ends after emerging from impaired consciousness.

Added value for patients: A better understanding of the long-term outcomes after EIN will be helpful for improving prognosis.

P022

What impedes us makes us stronger: the effect of impeding forces on body weight supported gait after stroke

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Introduction
The RYSEN is a body weight support (BWS) device that enables overground gait training and allows for the application of anteroposterior (AP) impeding forces to the trunk to enhance training effects. It has been shown that AP impeding forces can elicit more propulsion after stroke, but the effects of AP impeding forces on step parameters when combined with BWS are unknown.

Objective
Determine the effect of impeding forces combined with BWS on step parameters after stroke.

Patients
Nine individuals after stroke (68 ± 7 years, FAC: 3-5).

Added value for patients
Impeding forces combined with BWS may increase step lengths in individuals after stroke.

Methods
Participants walked overground at their self-selected speed in five conditions: unsupported walking (UW), 10% BWS -1% AP and -2% AP, 30% BWS -1% AP and -2% AP. Position data from both feet and the pelvis were used to calculate step lengths and single stance times for the paretic and non-paretic side. Differences compared to UW were assessed using linear mixed effects models.

Results
Paretic step lengths increased during 10% BWS -2% AP ($p=0.02$) and 30% BWS -1% AP ($p=0.03$). Paretic single stance times increased during 10% -2% AP ($p=0.03$).

Discussion and conclusions
The application of AP impeding forces resulted in increased paretic step lengths. This suggests that impeding forces can be used to generate more propulsion by the paretic leg, which can be exploited during gait training.

Clinical message
AP impeding forces with BWS can be used to increase paretic step lengths.

P023

Shared or guided decision-making in the clinical immunology practice? A matter of personalization!

Msc Tessa Folkertsma, Prof. Sjaak Bloem, MD PhD Robert Vodegel, MD PhD Reinhard Bos, Aad Liefveld, MD PhD Greetje Tack

The rheumatology, dermatology, and gastroenterology departments at Medical Centre Leeuwarden (MCL) launched a project to enhance supportive care for immunological treatments. This project aims to identify patient needs and appropriate supportive measures through qualitative research, ultimately improving care quality, patient engagement, and rehabilitation. The study utilizes the 'Subjective Health Experience' (SHE) model by Bloem and Stalpers, categorizing patients in four segments based on disease acceptance and perceived control. This model identifies specific patient needs, forming the basis for required rehabilitation support, tailored to those with immunological disorders.

Qualitative research at MCL involved group and individual interviews with healthcare professionals and patients with conditions like rheumatoid arthritis, inflammatory bowel disease, and psoriasis. Participants were recruited by physicians. Interviews were moderated by an experienced facilitator, following a structured guide. Discussions covered behaviours, questions, and needs for each patient segment, and patients also shared their thoughts on their conditions and health. Data were analyzed using the Matrix method (Groenland).

Nineteen healthcare professionals and eighteen patients participated. Key findings highlighted care requirements for each patient segment. Differences emerged between groups: patients valued quality interactions (attention, acknowledgment, empathy), while providers focused on treatment content. Patients with high acceptence were proactive and engaged in decision-making, whereas low-acceptance patients needed more guidance, reflecting 'guided decision-making.'

The SHE-model effectively personalizes supportive care for immunological conditions and helps identify candidates for shared or guided decision-making. Attention, acknowledgment, and active listening are crucial for personalized care. These findings will help dentifying quality-of-life measures and developing guidelines for clinical practice.

P024

Implementation of personalized aerobic and resistance training during rehabilitation of patients with physical impairments: FITopMAAT

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Introduction: Scientific research shows that aerobic and resistance(physical fitness) training of patients is beneficial for ADL functioning. However, current rehabilitation programs show large variation in exercise prescription, are not tailored, and lack uniform and evidence based protocols.
Aim To implement an evidence based tailored physical fitness training (FitopMaat) as part of rehabilitation for patients with impaired physical functioning.

Methods: A process evaluation was conducted on implementation of FITopMAAT in Merem according to Wensing et al. After analysis of barriers and facilitators of the intervention, specific implementation strategies were carried out. Interviews and focus groups among health care professionals and patients, and quantitative analyses of implementation and intervention outcomes served to evaluate this process.

Results: 50 patients and 14 healthcare professionals participated in the study. Participants were positive about FitopMaat. Reported strengths were safety precautions, personalised approach, structure and the exercise tests. Information about the program, follow-up exercise advice and reimbursement of the exercise test asks for improvement but, in general, FitopMaat was carried out as intended. The program seems suitable and feasible for the target group and is now an integrated module within the rehabilitation of patients in Merem. As expected, first pilot results indicate a positive effect on physical fitness.

Discussion/conclusion: FitopMaat was successfully implemented in rehabilitation of patients with impaired physical functioning in Merem. Good cooperation between project group members and their commitment along with a clear project plan were success factors. Despite financial, communicative, and organisational obstacles, important steps can be taken to improve rehabilitation programs.

P025

Feasibility of an intensive physical rehabilitation program (REHABILITY) for children and adolescents with acquired brain injury

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Ethics
The study has received approval from the METC of the UMC Utrecht (reference: 23U-0628).

Introduction
Although principles of neuroplasticity emphasize the potential of high dosage of physical rehabilitation in young people with acquired brain injury (ABI) during the subacute phase, we lack empirical evidence to demonstrate its impact in terms of meaningful outcomes.

Research question
Our study will evaluate the feasibility of (1) a high-intensive physical rehabilitation program (REHABILITY) to improve functioning and participation in children and adolescents with ABI, and (2) a core-set of clinical outcome measures on motor and cognitive functioning during the subacute phase.

Design
We use a prospective case-series design intending to enroll 10-15 children and adolescents aged 6-20 years with moderate-severe ABI during inpatient rehabilitation in De Hoogstraat, Utrecht. The REHABILITY-program involves 3-5 hours physical rehabilitation per day, utilizing a transdisciplinary approach with close collaboration with parents. Systematic assessment using a coreset of outcome measures will provide insights into the degree of recovery of motor and cognitive functioning.

Added value for patients
The REHABILITY-program will encourage young people with ABI to be more physically active during the subacute rehabilitation phase. Based on current insights into neuroplasticity, this could positively impact their rehabilitation outcomes.

Expected contribution to research and clinical practice
This study aims to demonstrate that the feasibility of 1) involving children and adolescents with ABI in a more intensive physical rehabilitation approach, 2) increasing physical practice within current financial structure and 3) assessing recovery of functioning through a core-set of outcome measures.

P026

Exploring best suitable patient/parent-reported-outcome-measures (PROMs) to study fatigue, participation and quality of life in young patients with acquired brain injury

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Introduction:
Acquired brain injury (ABI) in young patients could result in daily-life problems, such as fatigue, affected participation and diminished quality of life. Multiple patient/parent-reported outcome measures (PROMs) are used to measure these problems; however it is not known which is most suitable.

Objective:
To compare constructs and interchangeability of the Patient-Reported-Outcomes-Measurement-Information-System Pediatric-Profile 25v2.0 (PROMIS-PP25:physical-functioning/mobility/fatigue/depressive-symptoms/peer-relations/anxiety/pain) and the PedsQL™Multidimensional-Fatigue-Scale (MFS:total/general/sleep/rest-fatigue), Child&Adolescent-Scale-of-Participation (CASP:total/home/community/school-participation) and PedsQL™Generic-Core-Scales 4.0 (PedsQL™GCS4.0:total/physical/social/emotional-functioning) to investigate whether one could potentially replace the others.

Patients and added value: For young patients with ABI in the rehabilitation setting this research aids in finding efficient assessment of persisting symptoms and functioning.

Methods: This cross-sectional study analyzed data from 183 young patients (4-25 years) with ABI and 227 parents, referred for rehabilitation treatment. Content/structure of PROMIS-PP25 and PedsQL™MFS/CASP/PedsQL™GCS4.0 were thematically analyzed to identify similarities. Pearson's correlations (r) were used to determine relationships between those domains that thematically measured the same construct. When correlations exceeded 0.75, linking analyses (item-response-theory) were used.

Results: PROMIS-PP25 showed similarities with PedsQL™MFS/CASP/PedsQL™GCS4.0 in all domains. For PROMIS-PP25-fatigue and PedsQL™MFS general-fatigue, and PROMIS-PP25-anxiety and PedsQL™GCS4.0 emotional-functioning correlations exceeded 0.75 ($r=0.77$, $p<0.001$/ $r=0.71$, $p<0.001$). Since only 2 sub-domains correlated strong enough, further linking-analyses were not possible/feasible.

Conclusion/Discussion: Our results suggest that the PROMIS-PP25 does not adequately measure the same constructs as the PedsQL™MFS/CASP/PedsQL™GCS4.0 and can therefore not be used as a replacement.

Clinical message: PROMIS-PP25 appears to be a less suitable option for the ABI population, and it is recommended to keep using the PedsQL™MFS/CASP/PedsQL™GCS4.0.

P027

Home-based exergaming to enhance resistance to falls after stroke (HEROES): proof-of-principle protocol

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Introduction: Frequent falling is a major health concern for people after stroke. Poor reactive stepping to recover from a loss of balance contributes to their risk of falling. Perturbation-based training is an effective strategy for improving reactive stepping, however, its clinical uptake is limited. The HEROES intervention provides a promising solution. It involves a single session of perturbation-based training that is followed by a novel home-based exergame, which capitalizes on the potential of action observation and motor simulation.

Research question: In a proof-of-principle evaluation we aim to investigate whether the HEROES intervention improves reactive step quality in people with chronic stroke.

Trial design/ patients and methods: A total of 60 participants will be recruited from the patient population who received treatment in one of the participating Dutch rehabilitation centers. Participants will be assigned randomly to one of two HEROES experimental groups or to a control group. We will assess reactive step quality in response to sudden balance perturbations at baseline and two post-intervention time points.

Added value for patients: Home-based training preceded by a single perturbation-based training session is expected to be effective, yet substantially less burdensome than current interventions for improving reactive stepping. In addition, the intervention is tailored to the needs and preferences of people with stroke.

Expected contribution to research and clinical practice: The ultimate goals are to 1) prevent falls and fall-related injuries, 2) reduce fall-related health-care utilization and societal costs, and 3) help people with chronic stroke maintaining independence in daily life.

P028
Vervallen

P029

The use of a simplified 3D-foot model to identify equinovarus: a case-study

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Introduction:
In this case-study a chronic stroke survivor experiencing equinovarus during walking was measured using 3D-gait analysis to determine whether surgical intervention was needed. Traditionally, Plug-in-Gait-model(PiG) is used, representing the foot as a single segment. This leaves separate fore- and hindfoot kinematics in patients with equinovarus undetected. Multi-segment-footmodels could provide this information but are time consuming in preparation and data-analysis. The development of a simplified 3D-footmodel to identify kinematics of forefoot and hindfoot might overcome these disadvantages.

Objective:
To identify equinovarus using a simplified 3D-footmodel.

Patients:
Stroke patients with equinovarus.

Added value for patients:
Improve clinical-decision-making by identifying equinovarus with fast and high quality gait analysis.

Methods:
3D-gait analysis included 8-camera-system with PiG-model(VICON) and 3 additional markers on metatarsal 1, 5 and calcaneus. Lower limb kinematics, including hindfoot and forefoot, were defined during walking.

Results:
Results indicate that the simplified 3D-footmodel provides useful information about fore- and hindfoot movements, which are not detectable using standard PiG-model. At initial contact 14° hindfoot varus and 24° forefoot varus were detected on the affected side, in contrast to 3° hindfoot valgus and 10° forefoot varus on non-affected side.

Discussion and conclusions:
This case-study showed the benefits of a simplified 3D-footmodel to identify equinovarus above the traditional standard PiG-model to gain insights in the separate movement of fore- and hindfoot. Future research needs to compare the simplified 3D-footmodel to more established multi-segment-footmodels.

Clinical message:
The validation of the simplified 3D-footmodel provides clinicians the opportunity to identify equinovarus, thereby supporting clinical-decision-making, within limited additional time.

P030

The desires and experiences for individuals with physical disabilities in the field of adaptive gaming

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Introduction: Gaming is now an integral part of our society. For people with disabilities, gaming offers many opportunities in terms of social interactions, inclusivity, and quality of life. Despite the increasing technological possibilities, a significant group continues to face challenges.

Objective: The aim of this research is to assess the experiences and preferences related to adaptive gaming among individuals with physical disabilities.

Participants: The study included 143 children and adults with physical disabilities (46 childeren/adolescents aged up to 20 years and 97 adults aged 21 years and older).

Added value for patients: Loneliness and dependence on others are common among individuals with physical disabilities. Gaming has the potential to remove physical and geographical barriers, while also enhancing self-confidence and self-worth

Method: This study employed a quantitative descriptive approach, using a questionnaire for data collection.

Results: Among all participants, 40% engaged in gaming with adapted controls. However, half of them still expressed unmet needs in this area. Among those without prior experience in adapted gaming (n=103), 62% (n=64) expressed interest in using adapted controls. Overall, 73% (n=104) of participants had a desire for adaptive gaming.

Conclusion: A majority of participants expressed a desire for gaming-related improvements. They cited reasons such as increased enjoyment, better gaming performance, relaxation, and enhanced social interactions.

Clinical message: Gaming is a common request among individuals with physical disabilities, and it has positive effects on well-being. However, there is insufficient attention to this aspect in rehabilitation care.

P031

Multidimensional measurements of dysarthria in Myotonic Dystrophy type 1

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Introduction

Dysarthria is a common feature in myotonic dystrophy type 1 (DM1), resulting from weakness, fatigue, and hypotonia in oral and velopharyngeal muscles.

Objective

This study aims to describe acoustic characteristics of dysarthria in DM1 patients in comparison to the perceptual severity of dysarthria determined by a speech therapist and the patient's own opinion about their speech and intelligibility.

Patients

Participants were recruited from the outpatient clinic of Rehabilitation and Neurology of the Radboud university medical center. Inclusion criteria were a minimum age of 18 years, a genetically proven DM1 diagnosis and Dutch as their native language.

Added value for patients

More knowledge about dysarthria will lead to better referral policy.

Methods

Dysarthria severity was rated on a severity scale from 0 (no dysarthria) to 5 (very severe dysarthria/anarthria). Acoustic characteristics were derived from spontaneous speech, reading, and maximum performance tasks and analyzed with PRAAT. The patients judged their speech with a short questionnaire and a visual analogue scale (VAS).

Results

Twenty-two patients (9 female) were included, with a mean age of 50. The following acoustic characteristics were deviant from normative values: speaking rate, maximum phonation volume and maximum phonation time. In more severe dysarthria, speaking rate decreases. There is no significant correlation between the severity of dysarthria and patient satisfaction.

Discussion and conclusions

In this population, dysarthria led to disordered speech acoustically and perceptually measured. Patients were sufficiently satisfied with their speech.

Clinical message

Patient satisfaction about speech is not correlated with dysarthria severity.

P032

Nocturnal blood pressure dipping and blood pressure variability in individuals with motor incomplete spinal cord injury during primary rehabilitation

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Introduction
Individuals with spinal cord injury (SCI) have an increased risk of cardiovascular disease. Risk factors are reduced nocturnal blood pressure (BP) dipping and increased BP variability. Most research has focused on motor-complete SCI in the chronic phase, while limited information is available on individuals with incomplete lesions during primary rehabilitation.

Objective
This study aims to examine nocturnal BP dipping patterns and BP variability in individuals with motor-incomplete SCI during primary rehabilitation.

Patients
Eighteen individuals (n=17 males) with mean age of 57±13 years, motor-incomplete SCI (n=14 ASIA D) and mostly non-traumatic etiology (n=12), were measured during primary rehabilitation (median length of stay 37[27-51] days).

Added Value for Patients
This study offers insights into cardiovascular risk factors, potentially aiding in the development of prevention strategies.

Methods
Continuous 24-hour BP monitoring was used to record systolic and diastolic BP at admission and discharge. Nocturnal dipping was defined by a night-to-day systolic BP ratio ratio ≤90%, and BP variability by average real variability (ARV).

Results
At admission, there were 4 dippers and 14 non-dippers, compared to 3 dippers and 13 non-dippers at discharge, showing no significant change. During the rehabilitation phase, ARV remained high with no significant longitudinal changes.

Discussion and Conclusions
The study showed impaired BP regulation in individuals with motor-incomplete SCI during primary rehabilitation, marked by fewer than 25% showing normal nocturnal dipping and increased BP variability.

Clinical Message
The findings emphasize the importance of early BP monitoring during primary rehabilitation and the need for targeted interventions to prevent cardiovascular disease

P033

The Association between Energy Cost of Walking and Physical Activity in Ambulatory People with Spinal Cord Injury

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Introduction

Recent research showed low physical activity (PA) levels in ambulatory people with spinal cord injury (ApwSCI). Low PA is associated with worse general and mental health. The energy cost of walking (ECwalk) may play an important role in the unfavorable PA behavior in ApwSCI.

Objective

To determine the association between ECwalk and PA in ApwSCI.

Patients

SCI, age≥16 year, time since injury≥1 year, independent household walking.

Added value for patients

Knowledge of the association between ECwalk and PA may help to enhance treatment to improve PA in ApwSCI.

Methods

Ongoing cross-sectional study. ECwalk was defined as oxygen consumption during walking (VO2walk, per meter). VO2walk was measured by indirect calorimetry while walking at a comfortable speed. Participants wore an activity monitor (Activ8) for seven days on the upper leg to measure time spent walking (minutes/day) and total PA (walking, wheelchair driving, cycling, running) (minutes/day).

Results

Fifty-two participants were included, age 57.1(12.4) years, 83% male. All participants had SCI classified as AIS-D, and 40% had tetraplegia. ECwalk was 0.34(0.17) ml/kg/m. Participants were 108.4(59.6-166.1) minutes/day physically active, of which 85.1(52.4-116.5) minutes/day was walking time. ECwalk was significantly associated with total PA (r -0.4, p=0.004) and walking time (r -0.5, p<0.001).

Discussion and conclusion

These preliminary results suggest an association between ECw and PA in ApwSCI. However, the independent association between ECw and PA, and the role of other determinants of PA still needs to be studied.

Clinical message

The high ECwalk may be relevant concerning the level of PA in ApwSCI

P034

OPTIC trial: participation outcomes following induction treatment in persons with CIDP

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Introduction:
Although participation may be one of the most important predictors for quality of life (QoL) in persons chronic inflammatory demyelinating polyneuropathy (CIDP), it has not been systematically studied.

Objective:
Explore participation outcomes, also in relation to QoL in CIDP.

Patients:
Persons ≥18 years with clinically active CIDP included in a RCT on combined intravenous immunoglobulin and corticosteroid induction treatment (OPTIC trial; ISRCTN registry ISRCTN15893334).

Added value for patients:
We show that residual participation restrictions are an unmet need in persons with CIDP. Our study results may be the basis for future studies investigating modifiable factors/therapies that may improve participation and QoL in persons with CIDP.

Methods:
Outcome measures:
- Longitudinal assessment of functions (grip strength, MRC sum score, INCAT sensory sum score, Rasch modified Fatigue Severity Scale, pain NRS), disability (INCAT disability scale, iRODS), QoL (EQ5D5L), and paid work (iMTA Productivity Cost Questionnaire) at baseline and after 6, 18, and 52 weeks.
- Cross-sectional assessment of participation (USER-P, COPM) in a subset of patients.

Statistics: descriptive statistics and Fisher's exact/Mann-Whitney U (association) tests.

Results:
We included 74 persons in the analysis. Thirty-two persons had paid work at baseline, of whom less than half had working hours as usual (reportedly mostly due to CIDP) and a third reported insufficient work efficiency after 52 weeks. Complete results including demographics, disease characteristics, other participation domains, and participation-associated factors will be presented at the conference.

Discussion, conclusions/clinical message:
Persons with CIDP suffer from residual participation restrictions, despite response to induction treatment.

P035

Comparison of PROMIS® CAT Profile scores of stroke patients in a hospital and rehabilitation setting

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Introduction: The Patient-Reported Outcomes Measurement Information System® (PROMIS) computer adaptive testing (CAT) Profile is a relatively new generic measure of Health-related Quality of Life (HRQoL) measuring 7 domains.

Objective: To compare outcomes of the PROMIS CAT Profile in stroke patients who were treated in a hospital or rehabilitation setting.

Patients: Stroke patients from a hospital and rehabilitation centre.
Added value for patients: The PROMIS CAT Profile assesses a broad range of HRQoL domains with a low load for the patients.

Methods: Scores and levels of each domain, and the number of affected domains were compared between the two populations using Mann-Whitney U tests.

Results: The hospital population (n=341, median age 69, 46.9% females) had worse scores on 2/7 domains (i.e. Physical Function and Ability to Participate in Social Roles and Activities) and better scores on 4/7 domains (i.e. Anxiety, Depression, Fatigue and Pain Interference) than the rehabilitation population (n=160, median age 62, 41.9% females; all $p<0.001$). There were no differences in scores on the domains Sleep Disturbance and Pain Intensity. In both populations the majority of patients experienced problems in the domain Physical Function. The median number of affected domains per patient was higher in the rehabilitation population (5/7 versus 3/7, $p<0.001$).

Discussion and conclusions: Stroke patients from a hospital population had better scores on most domains of the PROMIS CAT Profile than patients from a rehabilitation population.

Clinical message: These results will help clinicians and researchers with the interpretation of the PROMIS CAT Profile data of their stroke patients.

P036

10 years SCORE study: results and recommendations for stroke rehabilitation

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Introduction: The Stroke Cohort Outcomes of REhabilitation (SCORE) study started 10 years ago.

Objective: To provide a summary of the results and recommendations of the SCORE study.
Patients: Stroke patients who receive inpatient and/or outpatient rehabilitation.

Added value for patients: Knowledge of long-term consequences of stroke and indications of areas where interventions are needed.

Methods: Patients completed patient-reported outcome measures (PROMs), such as pain in the shoulder, arm, wrist or hand (upper extremity, yes/no), work (yes/no, hours), the Hospital Anxiety and Depression Scale, health care utilization and out-of-pocket stroke-related costs. Caregivers completed the Caregiver Strain Index.

Results: Stroke has considerable consequences for patients as 32.7% experienced pain in the upper extremity on the long term. More than 2 years after stroke 50.6% of patients had paid employment. In the first year after stroke 43.9% of patients experienced persistent depressive symptoms and 19.5% experienced recurrent depressive symptoms. In caregivers of stroke patients 20.8% reported a consistent high burden and 11.1% reported a high burden at some point in the first year after stroke. The average total costs in the first year after the start of the rehabilitation for society were €63.045 for inpatients and €24.533 for outpatients.

Discussion and conclusions: Stroke has considerable long-term consequences for patients, caregivers and society. The results of the SCORE study lead to a number of recommendations to improve stroke care and for further research.

Clinical message: It is important to routinely administer PROMs, even long-term after stroke, to identify areas where interventions are needed.

P037

Evaluation of Compensation Strategies During Turns for Gait Impairments in Patients with Parkinson's Disease

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Introduction

Turning is a common daily activity that frequently precipitates falls in older adults, particularly in patients with Parkinson's Disease (PD). Falls during the turning phase constitute a significant factor in the deterioration of quality of life and the reduction of life expectancy in PD. Therefore, optimizing gait strategies in patients with Parkinson's Disease is imperative.

Objective

The primary objective of this study was to evaluate the impact of various cues on the average duration of turns, the number of steps taken, and total number of turns executed during the trial.

Patients

The cohort comprised 101 patients with Parkinson's Disease, including both freezers and non-freezers.

Added Value

Enhancing turning strategies holds the potential to mitigate fall risks, thereby improving the quality of life for patients with Parkinson's Disease.

Methods

This study involved the analysis of 101 patients with Parkinson's Disease, assessing their turning performance under six distinct conditions. In our motion laboratory, participants undertook a 3-minute walking test navigating around two cones in each of the six conditions. The number of steps taken and the duration of each turn were meticulously recorded using advanced motion analysis technology.

Results

A comprehensive analysis was conducted on a total of 17,726 turns performed by the patients. We saw a significant differance between the effect of cues for freezers and non freezers. Some cues like action observation had more effect on the duration of turn.

Clinical Message

Cues and compensation strategies can have impact on the gait impairments during gait but need further research.

P038

The role of nurses supporting an active lifestyle during inpatient rehabilitation: taking responsibility in solving societal challenges

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Introduction

Although enhancing physical activity (PA) is important for physical and cognitive recovery of stroke patients, the role of nurses in supporting an active lifestyle is underused during the inpatient rehabilitation treatment.

Objective

To identify nurses' perspectives on their potential role to support an active lifestyle of stroke patients during inpatient rehabilitation treatment?

Subjects

18 nurses (EQF level 3-6 (Dutch: 'verzorgende, mbo & hbo verpleegkundige')) including 3 interns.

Added value for patients

Improved support by nurses of an active lifestyle for patients during stroke.

Method

Three focus groups were conducted in three Dutch rehabilitation centres (Den Haag, Leiden, Arnhem) each consisting of 5-8 nurses. The transcribed data was analysed using the framework method.

Results

In their current role, nurses encourage PA with a focus on self-sustainability. In their future role, nurses foresee a shift towards coaching and supporting patients to achieve a more active lifestyle. To perform this future role, nurses' needs are expanding the basic skills (effects PA, motivation, activity options, behavioural change) and a structured approach that includes patients and families in decision-making. Also, the support & feeling of priority within the nurse team and within the interdisciplinary collaboration is needed.

Discussion/conclusion: The role of nurses in supporting PA is mostly in facilitating and coaching patients to be self-sustainable and nurses want to expand this role facilitating and coaching behavioural changes of patients.

Clinical message: Nurses need education to improve their role in supporting an active lifestyle Increasing their role also requires support from the interdisciplinary teams.

P039

Unraveling neuropathic pain: exploring mechanisms in spinal cord injury

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Introduction: Pain occurs in 68% of spinal cord injury (SCI) patients, significantly impacting quality of life. It is unclear which patients develop pain and how it evolves over time. Furthermore, the way an individual experiences his/her pain is known to be influenced by biopsychosocial factors.

Objective: Gaining more understanding in the relationship between sensory changes, affect and pain over time in the (sub)acute phase of SCI.
Patients: Six patients with SCI < six months.

Added value for patients: Understanding mechanisms of pain can guide future research, potentially leading to more effective personalized pain management.

Methods: An eight-week single-case observation design with biweekly measurements, including cold detection threshold (CDT), American Spinal Injury Association Impairment Scale (AIS), pain (Numeric Rating Score (NRS)) and Positive and Negative Affect Schedule (PANAS). Analysis included descriptive statistics and visualization of changes in sensory profiles, including bodycharts, over time.

Results: Due to heterogeneity of the results, categories according to pain severity were made according to NRS (no/mild, moderate, and severe). The AIS and PANAS outcomes showed no differences among groups. CDT revealed more sensory loss in the moderate and severe group (68,7% and 65% respectively) compared to the mild/no pain group (27,8%).

Discussion: Preliminary findings suggest that sensory loss in CDT may be associated with pain severity in SCI. Making sensory profiles seem valuable to analyze pain. Possibly, sensory profiles can be useful to predict pain development, facilitating early treatment.

Clinical message: Sensory measurements using CDT are feasible and safe to perform in SCI patients.

P040

Measurement of Outcomes of Rehabilitation in the Netherlands (MUREVAN): interim results of a multicentre prospective cohort study

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Introduction: The aim of the MUREVAN study is to evaluate a selection of generic patient-reported outcome measures for use in inpatient and outpatient rehabilitation.

Objective: To present interim-results of MUREVAN, specifically the characteristics of the included patients and their baseline scores on physical functioning and health-related quality of life (HRQOL).

Patients: A multi-diagnostic group of adult patients receiving inpatient or outpatient rehabilitation in 14 Dutch rehabilitation institutions (N=420).

Added value for patients: Routine outcome measurement can provide patients in rehabilitation with insight in the benefits of their treatment.

Methods: Physical functioning was measured with the PROMIS-Physical Function (PROMIS-PF SF23), and HRQOL with the EuroQoL-5D-5L (EQ-5D).

Results: So far, 420 patients have completed the questionnaires at the start of their rehabilitation. The most common diagnosis among inpatient patients was acquired brain injury (74.5%), while among outpatients, the most common diagnoses were chronic pain (33,5%) and oncology (31,4%). Inpatient patients with spinal cord injury had the lowest mean scores on the measures (PROMIS-SF=23.4 and EQ-5D=0.38), whereas outpatient patients with acquired brain injury had the highest mean scores (PROMIS-SF=43.2 and EQ-5D=0.65).

Discussion and conclusion: In general, patients in rehabilitation scored 33% lower on HRQOL compared to the general Dutch population (mean=0.87). All diagnostic groups had mild to severe impairments in physical functioning (t-score=20–45). Follow-up measurements will provide insight into the responsiveness of these instruments.

Clinical message: The results of the MUREVAN study will provide insight into the appropriateness of the selected measures to evaluate rehabilitation outcomes in adult rehabilitation across diagnoses.

P041

Vocational Rehabilitation for Patients with Post COVID-19 to Improve Quality of Life, Physical Function, and Return to Work

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Introduction:
By March 2023, four out of five Dutch post-COVID-19 patients were on sick leave. Due to limited research, evidence-based guidelines for post-COVID-19 are scarce. While some studies show that multidisciplinary treatments may reduce physical symptoms, specific information on vocational rehabilitation (VR) is lacking.

Objective:
To assess if a VR program improves quality of life (QoL), physical functioning, and return to work for post-COVID-19 patients.

Patients:
The characteristics of 348 participants are described. 209 joined a VR group, with 98 included in the final analysis.

Added value for patients:
A VR program might improve the QoL, physical functioning, and return to work for post-COVID-19 patients.

Methods:
Participants attended a 15-week VR program, two half days per week, including physical therapy, group therapy, consultations with psychologists or work coaches, relaxation exercises, and homework. Surveys were collected at screening, discharge, 6- and 12-months follow-up.

Results:
Baseline characteristics between VR and non-VR groups showed no significant differences, except for referring specialists. Individuals in VR were more often referred by an occupational physician whereas individuals in non-VR proportionally more often by their general practitioner. Significant improvements in physical functioning, QoL, and return to work were observed up to six months. The 12-month follow-up response rate was too low for further conclusions.

Discussion:
The VR program improved QoL, physical functioning, and return to work for post-COVID-19 patients. Due to insufficient long-term data, sustained recovery cannot be concluded.

Clinical Message:
A VR program could aid post-COVID-19 recovery, but more research is necessary to determine sustained effects.

P042

Gait features in children with hereditary spastic paraplegia compared to cerebral palsy

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Introduction: Hereditary spastic paraplegia (HSP) and cerebral palsy (CP) both present with lower limb spasticity and muscle weakness. Despite the similarities, gait differences have been described. Identifying characteristic gait features is crucial for effective, personalized treatment to improve walking function.

Objective: The aim of this study was to analyze gait features in children with HSP and compare them to CP, to better understand the underlying gait pathology.

Patients: Patients were selected from a database comprising children on the waiting list for selective dorsal rhizotomy at Amsterdam UMC (1998-2021). Seven children (age 6.7 ± 5.7) with genetically confirmed HSP were matched with 14 children with CP (age 7.1 ± 3.4), based on functional mobility level, age and sex.

Added value: This study contributes to tailored treatment for children with HSP with walking limitations.

Methods: In this retrospective cohort study 2D video-recorded Clinical Gait Analysis was used to calculate the Edinburgh Visual Gait Score (EVGS) along with relevant kinematic parameters.

Results: While overall gait quality (EVGS) was similar, distinct differences at midstance were observed, with children with HSP demonstrating increased anterior pelvic tilt (mean difference: +7.78°, p=0.036), less knee flexion (-17.14°, p=0.027), and ankle plantar flexion (-13.07°, p=0.048), compared to children with CP.

Discussion: Potential explanations for the differences found include a more predominant role of soleus spasticity in HSP gait, but further research is required.

Clinical message: Children with HSP possibly demonstrate unique gait patterns which differ from those seen in CP. This study forms a step towards a tailored treatment.

P043

Understanding the experiences of sleep and physical activity in adults with cerebral palsy: A qualitative exploration

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Introduction: Sleep and physical activity, collectively referred to as the 24-hour physical activities, are essential for well-being. Encouraging and optimizing these activities in adults with cerebral palsy (CP) can promote good health outcomes. However, knowledge regarding the 24-hour activities in adults with CP is limited.

Objective: Describe 24-hour physical activities in adults with CP compared to guidelines and controls and explore potential influencing factors.

Patients: 110 adults with CP residing in the Netherlands

Added value for patients: Detailed information on the 24-hour activities in this population will facilitate appropriate guidance towards an optimal balance in rest and activity.

Methods: Cross-sectional, observational study using questionnaires to measure sleep and physical activity.

Results: One in three adults with CP slept less than the recommended 7 hours per night. Nine out of ten reported poor sleep quality. Sleep quality was significantly worse in adults with CP compared to controls. Two out of three adults met the physical activity guidelines, comparable to controls. 44% of adults with CP met both sleep and physical activity guidelines. Severity of CP, age, sex, pain/discomfort, and anxiety/depression did not influence problems within the 24-hour activities.

Discussion and conclusion: This study finds poor sleep quality and modest adherence to the 24-hour activity guidelines in adults with CP. Future studies should combine subjective and device-based measures to obtain a complete impression of the 24-hour patterns.

Clinical message: This study emphasizes the importance for clinicians to assess physical activity and sleep in clinical encounters with adults with CP.

P044

The 24-hour physical activities in adults with cerebral palsy and their adherence to the 24-hour movement guideline

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Clinical message: This study emphasizes the importance for clinicians to assess physical activity and sleep in clinical encounters with adults with CP.

P045

Application of learning strategies by children with DCD and their parents at home

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Introduction: Rehabilitation-Friesland aims to improve their care for children with Developmental Coordination Disorder (DCD). During intervention learning strategies are learned that help the children to improve their motor performance. including performance outside the intervention context. However, it is unknown if and how these strategies are applied at home after intervention ended.

Objective: To describe how children with DCD and their parents make use of the learning strategies in the home situation.

Patients: 9 children with DCD and 9 parents.

Added value for patients: The results of the study can be used to further improve the care for children with DCD, for instance by involving parents even more in the rehabilitation process.

Methods: Semi-structured interviews were used to explore if and how learning strategies were applied by parents and children at home. Interviews were analyzed through inductive coding.

Results: Not all children consciously used a learning strategy. The children who most often used the strategies applied them at school, during gym or outdoor play. They reported greater self-confidence as a result. The parents who were more involved in the intervention did indicate that they used the learning strategy a lot in the home situation. Not every parent appeared to be familiar with the learning strategies.

Discussion and Conclusion: Children with Developmental Coordination Disorder (DCD) applied the learning strategies at home after the intervention. Parental involvement seems crucial.

Clinical Message: Learning strategies are useful for children with DCD and parents in their home situation when both children and parents have learned them.

P046

Values for cardiorespiratory fitness in persons with lower limb amputation

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It is important to have insight into the individual physical capabilities for persons with lower limb amputation (LLA) to compose better rehabilitation programs to train and improve cardiorespiratory fitness (CRF).
The aim of this retrospective study is to gain insight in CRF of persons with LLA and in potential factors influencing their CRF.
Persons with LLA (≥18 years) were included who performed a maximal cardiopulmonary exercise test in Rehabilitation Center of Heliomare (January 2018-November 2022). Knowledge about individual CRF can be used to discuss, guide and manage expectations from the perspective of both the person with LLA and professionals.
Main outcome was CRF expressed as V̇O2peak (ml/min/kg). Multivariate regression analysis was performed to investigate potential factors (age, BMI adjusted, gender, level of amputation, etiology of amputation, unilateral/bilateral, type of ergometry and use of beta blockers) related to V̇O2peak in persons with LLA.
74 participants with LLA were included (84% male, mean age 58.9(SD 11.6), 44 participants have LLA above the knee). Overall V̇O2peak 14.6±4.1 ml/kg/min. In the regression analysis, only age was a significant predictor for lower V̇O2peak (Regression Coefficient:-0.15,95%CI [0.23;0.069],r2=0.166).

CRF(V̇O2peak) in participants with LLA is low compared to the reference values reported for age- and gender matched able-bodied controls. CRF is not closely associated with the analysed demographic or clinical factors.

CRF in persons with LLA is low while they need more energy for walking and other daily activities. Therefore CRF should be determined on an individual basis for setting rehabilitation goals.

P047

Energy cost for activities of daily living in persons with lower limb amputation; a pilot study

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Despite ample knowledge on the energy cost of walking, not much is known about energy costs for different activities of daily living (ADL) in persons with lower limb amputation (LLA). The aims are to assess energy cost ($\dot{V}O_2$ ml/kg/m) during non-steady state ADL using Excess Post-exercise Oxygen Consumption (EPOC), by assessing (1) feasibility of the measurement protocol, (2) the validity of the EPOC method and steady state method and (3) assessing whether interindividual difference in energy cost are consistent over tasks.
Six adults with unilateral LLA (5/6 male, mean age 59years, 3 transtibial LLA, 3 transfemoral LLA) performed 5 ADL tasks. COSMED K5 spirometer data was used to calculate the energy cost. Feasibility was assessed based on feasibility criteria. Validity of the EPOC method was checked with a Bland-Altman plot and a paired t-test. interindividual consistency was assessed with an intraclass correlation (ICC(3,5)).
Validity of the EPOC showed a bias of 4.6% and limits of agreement of 22.6% with no significant difference found between the EPOC and steady state method ($p>0.05$). Excellent consistency over tasks was found (ICC(3,5)=0.958).
Measuring energy cost in LLA during ADL is feasible and can be done using the EPOC method. Moreover, high interindividual consistency implies that energy cost might serve as a predictor of energy cost on other tasks.
Energy cost measurements can be used in rehabilitation to individualize rehabilitation programs by setting attainable goals and gaining insight in the challenges of persons with LLA.

P048

Technique selection in transfemoral amputation surgery – an interview study among surgeons

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Introduction: In transfemoral amputation (TFA) surgery, two surgical techniques can be used to secure the transected muscles in the residual limb: myodesis and myoplasty. Although the selected technique could influence patient outcomes, a scientific basis for surgical technique selection is lacking. Furthermore, little is known about the circumstances in which surgeons select one technique over the other and the reasons behind their choices.

Objective: This qualitative interview study aimed to explore current (inter)national practices, influencing factors, and decision-making in surgical technique selection in TFA surgery.

Methods: Semi-structured interviews were conducted with 23 vascular, orthopedic, and trauma surgeons. Transcripts were analyzed using applied thematic analysis.

Results: Findings revealed variation in how surgeons perform myodesis and/or myoplasty, including differences in muscle reattachment methods and hip positioning during muscle fixation. Myodesis was favored for its potential benefits, such as preventing femur deviation and improving function, while myoplasty was preferred for more practical reasons, like sticking to what was learned and minimizing operation time. Surgeons had conflicting perspectives on the advantages and disadvantages of both techniques, and on their use in older, more fragile patients. The lack of research and observed patient outcomes influenced current technique selection and led some surgeons to see no reason to change their technique.

Discussion and conclusions: This study highlights substantial variation in TFA practices and diverse opinions and rationales among surgeons regarding myodesis and myoplasty. The findings underscore the need for further research to identify the optimal surgical technique to enhance clinical practice and patient outcomes in TFA.

P049

Integrating Personalized Physical Activity Promotion in Stroke Rehabilitation: Roles, Barriers, and Opportunities for Multidisciplinary Teams

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Introduction:
Stroke patients often fail to meet physical activity guidelines and engage in prolonged sedentary behavior. Rehabilitation typically focuses on functional recovery, independence, disability management, and vocational skills, but promoting a sustainable active lifestyle is not fully integrated into standard treatment.

Objective: Explore roles of the multidisciplinary rehabilitation team and identify barriers and facilitators for promoting an active lifestyle.

Patients: Stroke survivors

Added Values for Patients: Enhancing the role of healthcare professionals (HCPs) in promoting an active lifestyle could improve patient outcomes by integrating personalized physical activity into standard stroke rehabilitation.

Method: Thirteen healthcare professionals participated in a workshop to discuss their roles in promoting an active lifestyle among stroke survivors. Supplementary interviews deepened insights.

Results: Findings suggest that although HCPs engage in physical activity, their efforts are mainly demand-driven and not explicitly integrated into standard treatments. Sedentary behavior receives minimal attention. HCPs identified opportunities to expand their roles and proposed strategies to overcome barriers, such as improving interdisciplinary communication, standardizing physical activity promotion, addressing barriers within protocols, and enhancing knowledge. Attention is required for stages of grief in the treatment process.

Discussion and Conclusions: Integrating personalized physical activity into standard stroke rehabilitation requires addressing current barriers, leveraging opportunities, and a coordinated multidisciplinary effort.

Clinical Message: Enhancing the role of HCPs in promoting an active lifestyle in stroke rehabilitation can enhance recovery and long-term health outcomes. Practical implications include structured protocols, better interdisciplinary collaboration, and a greater focus on reducing sedentary behavior.

P050

Relying on the external world: uncovering individual strategies in working memory usage after stroke

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Introduction: Memory complaints are common after stroke. In neuropsychological assessment, the maximum memory capacity is typically measured. Although this is useful for diagnosis, it does not reflect how patients actually use their memory in daily life.

Objective: Gain insight into how stroke patients use their memory capacity.
Patients: Stroke patients in inpatient rehabilitation (n=15) and healthy controls (n=38).

Methods: Participants copied an example puzzle from one side of a screen to the other, while measuring eye movements. The example was either constantly available or only after a waiting time, to see how this affected the spontaneous use of different strategies. We measured how often and long participants inspected the example, and compared this between stroke patients and controls.

Results: When information was constantly available, all patients and 97% of controls memorized maximum 1 item per inspection. Patients inspected the model more often and longer than controls. When information was not readily available, 47% of patients and 61% of controls memorized 1 or more item per inspection. Again, patients inspected the model longer than controls.

Discussion and conclusions: Most people – both patients and controls – heavily rely on the environment. Patients inspect the example more often and longer than controls, implying an increased reliance on an 'external memory buffer' during stroke recovery.

Clinical message: Stroke patients tend to rely less on their memory than controls. While individuals may use this strategy in everyday life to support (defective) memory, capacity tasks do not allow for, or reflect, such a strategy.

P051

Evaluation of the prescription of pain medication during inpatient spinal cord injury rehabilitation

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Introduction: Pain is a frequent secondary health condition for individuals with spinal cord injury (SCI), impacting quality of life and presenting treatment challenges. This study examines adherence to pain management guidelines at the inpatient SCI department of De Hoogstraat Rehabilitation to identify potential areas for optimization.

Methods: Data was collected from 50 inpatients with recent SCI and pain in 2021, excluding those with pre-existing pain. Information on demographics, pain type, treatments, medication, guideline adherence, and reasons for deviations was extracted from electronic records.

Results: Of the 50 patients, 46% had traumatic SCI, 60% ASIA Impairment Scale D, and 54% paraplegia. At admission, 94% had nociceptive pain, with 92% receiving paracetamol and 66% oxycodone, which decreased to 68% and 28%, respectively, at discharge. The WHO guideline for nociceptive pain was inapplicable in 77% of cases due to drug tapering and non-adherence was only 2%.
At admission, 72% of patients had neuropathic pain. Pregabalin use declined from 52% to 48%, while amitriptyline use increased from 24% to 48%. The Dutch guideline for treating neuropathic pain in SCI patients was followed in 26%, not followed in 40% and inapplicable due to drug tapering in 34%. Reasons for deviation were described in 13 of 19 cases.

Conclusion: The WHO guideline for nociceptive pain was largely inapplicable due to drug tapering, possibly due to general recovery. For neuropathic pain, adherence was low, indicating potential for optimization in prescribing practices and guidelines.

P052

Participants' experiences of Phantom Motor Imagery treatment to decrease phantom limb pain and the consequences on their daily functioning

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Introduction: Phantom Limb Pain (PLP) frequently occurs after limb amputation, which commonly influences daily functioning in a negative way.

Objective: To investigate the experiences of individuals with PLP after amputation of a limb, who underwent Phantom Motor Imagery (PMI) treatment, and to explore the consequences of the PMI treatment on daily functioning. PMI treatment aimed to decrease PLP by imagining phantom movements and learning to control phantom limb movements by using extended reality techniques.

Patients: Eight Dutch patients, mean age 63 years, 4 males, 3 transtibial amputations, 5 transfemoral amputations.

Added value for patients: a new non-invasive and potentially effective treatment for PLP with negligible side effects.

Methods: A qualitative study, consisting of semi structured interviews 1 month after finishing the PMI treatment (15 sessions). Data analysis followed the Framework method.

Results: PLP was related to worse mood and decreased participation in daily life. PMI treatment resulted in improved control over movements of the phantom and in most PLP decreased. PLP returned for some after the last treatment. Participants had limited knowledge about PLP.

Discussion and conclusions: PMI treatment could be considered to treat PLP. Continuing PMI treatment is advised for lasting effect. As PMI treatment, contrary to Phantom Motor Execution treatment, doesn't require any acquisition system, it might be easier implemented for home training.

Clinical message: Clinicians should educate patients about PLP and can use PMI treatment to potentially reduce their PLP. Clinicians might encourage patients to move their phantom to treat, and potentially prevent, PLP.

P053

Unravelling patient-defined goals related to (fine)hand-arm use enhances shared decision-making in spastic upper limb surgery for youth with cerebral palsy

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Introduction: Spasticity of the upper limb in youth with cerebral palsy (CP) may impede daily activities. Unravelling patient-defined goals to hand-arm use and movements contributes to shared decision making on upper limp surgery, yet this remains underexplored.

Objective: This qualitative study aimes to categorize patient-defined goals of youth with CP, upper limb spasticity using the International Classification of Functioning, Disability and Health for Children and Youth (ICF-CY) coding system.

Patients
Twenty-one patients, aged 10-23 years (mean(SD) 16.4(3.9)), diagnosed with CP (81% MACS I-III, 19% MACS IV-V), were enrolled and collectively defined 105 COPM goals.

Added value for patients
Translation of patient-defined goals to (fine)hand-arm use.

Methods
The Canadian Occupational Performance Measure (COPM) was used to identify patient-defined goals. Thematic analysis approach was used to analyze 105 goals. Codes were structured into the domains of the ICF-CY by two investigators using qualitative analysis software (MAXQDA).

Results
The intercoder agreement for code occurrence was 80.1% (range: 0-100). Of the 105 goals, 29% were one-handed and 71% were two-handed. Codes were allocated in 99% to the domain of Activities and Participation: Communication(2%), Mobility(76%), Self-care(14%), Domestic life(1%), Major life areas(1%), Community, social, and civic life(6%).
Further coding of Mobility showed: Carrying, moving, handling objects(92%) including Fine hand use(63%) involving releasing, manipulating, grasping, and picking up; Hand-arm use(29%) involving catching, turning/twisting, reaching, pushing, pulling; Lifting and carrying(10%).

Discussion, conclusions and clinical message
Unravelling patient-defined goals to (fine)hand-arm use and movements facilitates and enhances shared decision-making for spastic upper limb surgery in youth with CP.

P054

Older stroke patients also recover well during inpatient rehabilitation

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Introduction

The majority of stroke survivors that require inpatient rehabilitation before discharge to home, are over 70 years old. While many patients recover, a significant group does not regain full mobility or independence in ADL, often affected by vision, balance, cognitive speed, along with stroke-induced paresis. We anticipate differences between younger and older patients.

Methods

Patients were admitted to a geriatric or medical specialistic rehabilitation center. The differences between younger (<70) and older (≥70) patients were studied by patient and stroke related characteristics, measured at admission and discharge from inpatient stroke rehabilitation.

Results

64.3% of the patients admitted to inpatient stroke rehabilitation (N = 115) was ≥70 years of age, 92% admitted in geriatric rehabilitation. At admission 36.6% of the younger patients were dependent in ADL (BI<15), which decreased to 2.9% at discharge from the rehabilitation center. This decrease in ADL dependency was also shown by older patients (62.9% to 14.8%). The number of younger patients at risk of falling (BBS<45) decreased during rehabilitation (35.2% to 14.3%), as well as for older patients ((62.2% to 39.7%). At admission 41.1% of the younger patients were not able to walk independently. This number decreased to 11.4% during stroke rehabilitation. Older patients also showed a decrease in the number of patients unable to walk independent (54.0% to 13.2%).

Discussion

Older patients admitted to inpatient rehabilitation showed, like younger patients, good recovery. In both age groups approximately one in eight patients were not able to walk at discharge from the rehabilitation center.

P055

Pediatric Spinal Cord Injury in the Netherlands: data from the Dutch Spinal Cord Injury Database 2015-2022

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Introduction:
The Dutch Spinal Cord Injury Database (DSCID) contains data of Dutch patients with SCI admitted for their first inpatient rehabilitation.

Objective:
1) Describe the pediatric SCI population in the Netherlands; 2) Evaluate the DSCID's suitability for the pediatric population.

Patients: Children (0-17 years) with newly acquired SCI admitted in Dutch rehabilitation centers between 2015-2022.

Added value for patients:
Insight in pediatric SCI population.

Methods:
Retrospective study. Descriptive statistics were used for demographics and SCI characteristics, and pediatric DSCID data completeness. Evaluation of the suitability of the DSCID on the pediatric population was based on completeness of data (>90%), and through a semi-structured interview.

Results:
Admission data available for 57 patients; discharge data for 45 (79%). Median age: 15 years (IQR 12.5-17); 67% male; 51% non-traumatic SCI (NT-SCI), 48% incomplete SCI (AIS D); 57% paraplegia. Patients with traumatic SCI (T-SCI) were significantly older, had more often a tetraplegia and longer length of stay compared to those with NT-SCI. Semi-structured interview revealed unsuitability of certain questions for the pediatric population due to age and developmental level. Admission data were nearly complete (>90%) for pain and skin while sexual function had the lowest completion rate (0% for females).

Discussion and conclusions:
DSCID shows NT-SCI and T-SCI groups are equal in size in the Netherlands. The DSCID provides useful insight into pediatric SCI but is not fully applicable to the pediatric population.

Clinical message:
Enhanced dataset could improve understanding of pediatric SCI. Revision of the DSCID would be recommended for the pediatric population.

Innovation Posters I001 - I019

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I001

BreeZe – a program for self-management support after a burn injury

MSc Sharon Blok[1,2,3], Dr. Marianne Nieuwenhuis[1,2,4], Dr. Sonja Scholten-Jaegers[1], Irma Visser[7], Anita Boekelaar-van den Berge[5], Dr Denise van Uden[6], MSc. Ina van Ingen Schenau - Veldman[1,2], MSc. Gerbrig Bijker[1], Dr. Corry van der Sluis[3], Dr. Eelke Bosma[1,8], Dr. Sven Geelen[1,2,4]
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After a burn injury, burn survivors have to manage and integrate the physical, psychological and social consequences of the burn injury into their daily lives, such as functional limitations, aesthetic complaints and fatigue. How successful patients manage these consequences, highly depends on their self-management. Self-management can be defined as “the ability of the individual in conjunction with family, community, and healthcare professionals to manage symptoms, treatments, lifestyle changes, and psychosocial, cultural, and spiritual consequences of health conditions” (Richard & Shea, 2011). Healthcare professionals play an important role in supporting self-management of burn survivors.
To our knowledge, there are currently no self-management support programs available in burn care. Therefore, we developed a self-management support program for healthcare professionals called BreeZe (Geelen et al., in progress). BreeZe aims to enhance burn survivors’ intrinsic motivation and self-efficacy regarding self-management post-discharge and includes four key elements: (1) case management, (2) a holistic approach, (3) shared decision-making, and (4) burn survivor empowerment. BreeZe accomplishes this by providing healthcare professionals education on self-management, training on communication skills (e.g., motivational interviewing), and communication- and decision aid tools. In practice, burn survivors will identify and prioritize their problems using a decision aid tool, set personalized goals together with their healthcare professional, and form an action plan for goal attainment.
In 2024, the BreeZe program will be implemented in the three Dutch Burn Centers in Groningen, Rotterdam, and Beverwijk, following a stepped-wedge design and with use of the CFIR framework. Outcomes will be reported according to the RE-AIM model.

I002

MSR fasttrack; an example of how societal changes can lead to changes in rehabilitation indication

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[1]Libra Revalidatie & Audiologie, [2]Catharina Ziekenhuis

In a changing healthcare environment, where the pressure on healthcare is increasing and more complex care must be provided with less hospital beds, a rapid transfer from the hospital to the rehabilitation center after Acquired Brain Injury (ABI) is becoming increasingly important. However, there are long waiting times for clinical rehabilitation. This is disadvantageous for those patients who, due to technologies like IVT and IAT, are less severe affected, but still have an indication for inpatient rehabilitation.

This has led to the development of an “MSR fast track” in analogy to an already existing “GRZ fast track” between hospital and geriatric rehabilitation. The FastTrack aims to transfer patients meeting the following criteria within 24 hours: 1) indication for inpatient rehabilitation according the national guidelines; 2) limited linguistic and cognitive disorders for which functional diagnostics have been completed; 3) expected clinical stay of 2-4 weeks

In 2023, a total of 15 patients were transferred from hospital to rehabilitation center under the Fast Track. In comparison to usual transfer, waiting time to transfer in FastTrack reduced from 11 days to 2 days, and length of hospital stay from 17 to 4 days. Data were also compared to data from 2019.

Currently, the FastTrack is being expanded to other hospitals in the region, and we will start an evaluation project to assess patient outcomes and the impact on the rehabilitation after the clinical phase(s).

I003

Adaptations in regional education to complement the renewed national education for rehabilitation residents

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[1]Amsterdam UMC, [2]The Netherlands Society of Rehabilitation (VRA)

Topic:
A guide to adapt regional education according to the national education programme for rehabilitation residents.

Relevance:
Following the new organisation and content of the national education programme for residents, there was a demand for guidance on designing regional education that is complementary and coherent to the renewed national education.

Current status:
Qualitative research has been performed within several stakeholders; residents, trainers and the Concilium (committee of the Netherlands Society of Rehabilitation Medicine responsible for the education of Dutch residents) and involved questionnaires, a policy day and semi-structured interviews.
The results were organised in three educational topics; content, form and organisation. The advice was based on a balance between these three aspects and the bottlenecks that emerged in the research. These results were discussed with educationalists.
We advise to mainly educate in cross-disciplinary subjects to make education accessible to all levels and independent of the current internship of the individual resident. To gain a higher learning efficiency, we recommend active education forms to stimulate interaction and active participation. And to emphasise the input and involvement in regional education, the organisation is mainly the responsibility of the residents. Structured evaluation should be implemented.
Although these adaptations can mean large adjustments in the regional education, with these changes, the regional education will be complementary and coherent to the renewed national education.

Plan of action:
The advice has been written and accepted by the Concilium of the Netherlands Society of Rehabilitation Medicine. The advice will be incorporated in the new national education plan.

I004

‘The Brilliant Study’: implementation research on the guidance ‘primary care rehabilitation brain injury’

Msc Gerbrich Douma[1], MD, PhD Paulien Goossens[2,3], PhD Kitty Jurrius[4,5], PhD Ton Satink[6], Prof., PhD Maud Graff[1,7]
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Topic:
In order to keep rehabilitation accessible, it should take place in competent networks. The objective of 'The Brilliant Study', is to examine the implementation and evaluation of the ‘guidance for primary care rehabilitation for individuals with acquired brain injury (ABI)’, which was presented in May 2023. The methodology employed is Participatory Action Research (PAR), with the focus of the research being on changing strategies and multidisciplinary collaboration in primary care.

Relevance:
Accessibility of rehabilitation is at stake. The research topic concerns the necessity for more equitable high-quality treatment in primary care for individuals with ABI and to reduce regional disparities.

Current status:
The guidance summons which experience is needed for allied health care professionals (AHCP) and gives recommendation on collaboration and findability of AHCP with a special interest in ABI. The current implementation study is carried out through PAR in three regional brain injury networks in the Netherlands. The regions were mapped, and interviews were conducted with 14 individuals with ABI. The interviews sought to elicit their perspectives on rehabilitation and the content of the guidance. A workshop on multidisciplinary collaboration in primary care was conducted for the AHCPs connected to the regions.

Plan of action:
The PAR will be conducted in further phases, with multiple moments of data generation, and the networks and stakeholders involved in each phase. Ultimately, the aim is to answer the central question of how multidisciplinary collaboration in primary care and the network around people with ABI can be developed and implemented.

I005

Implementation of Guidance for Primary Care Rehabilitation for Acquired Brain Injury: results and opportunities

Msc. Lucas Koester[1], MSc. M Bergsma, Ph.D. B Vrijhoef
[1]Dutch Stroke Knowledge Network

TOPIC: primary care rehabilitation, nationwide implementation

RELEVANCE: Fundamental to the quality of care for people with Acquired Brain Injury (ABI), is the way services are organized [1]. To strengthen interdisciplinary rehabilitation in primary care a Dutch national guidance was developed for networks in 2023. [2]. The guidance holds recommendations for healthcare professionals and networks regarding: organization of care (1); criteria for knowledge and skills of allied health professionals (2); visibility and findability of healthcare providers and networks for patients and providers (3).

CURRENT STATUS: The guidance is currently being implemented nationwide. In doing so, the Learning Network Implementation of Guidance for Rehabilitation in Primary Healthcare (LIH) was established in 2024 to support networks. In 2 workgroups, each consisting of representatives of 3 networks, a toolkit is being developed, tested and scaled up using Design Thinking.

The toolkit consists of:

A tool describing characteristics of primary care networks;

A tool showing available neurorehabilitation training regarding knowledge domains, as formulated in the guidance;

A tool for accreditation of the network;

A formalization tool for the social map and partnerships;

An insight tool for competencies for interdisciplinary collaboration.

PLAN OF ACTION: The toolkit will be further adapted based on insights at both substantive and organizational levels for the best possible combability for scaling up. With the help of the LIH, the results will be consolidated, whereas future challenges can be responded to effectively. This will contribute to improved organization of healthcare by care providers and better outcomes for people with ABI.

I006

Implementing TMS as a new treatment for upper limb recovery after stroke: a qualitative study

Drs Elian König[1], dr. Jord Vink[1], dr. Joris de Graaf[1], prof.dr. Anne Visser-Meily[1], dr. Judith Dudok-van Velzen[1]
[1]UMC Utrecht

Earlier research suggests transcranial magnetic stimulation (TMS) can be used to stimulate upper limb recovery after stroke. A multiple centre trial (BSTARS2) will be performed to investigate the outcome of TMS treatment in patients with upper limb paresis after stroke. This study aims to investigate the possible facilitators and barriers when implementing BSTARS2. The study was performed as a case study involving qualitative semi-structured focus group interviews inspired by the theoretical domain framework.

Five focus group interviews were held in different rehabilitation centres, with a total of thirty interviewees. Participants were excited to learn about the TMS treatment and contribute in what they thought to be a very promising study. Moreover the focus groups resulted in activation of participating centres. As potential barriers four main themes were discussed:
- Implementing a new treatment in daily care is a logistic challenge. It's necessary to adjust the daily schedule of the patients and therapist in an early stage.
- There is a need for good communication within the rehabilitation centre. All involved colleagues need to have access to correct information.
- There is a request for consultation of other centres and hospitals to exchange thoughts.
- There is request for complete information and a demonstration on how to use TMS.

In conclusion this study showed that all interviewed participants are positive about their participation in BSTARS2. Nevertheless this study identified several themes that might interfere with implementation and can be addressed beforehand. Ultimately adjustments can be made to avoid a negative influence.

I007

Arm-leg ergometry – A new method to perform exercise testing and training in people with impaired lower limb function

Dr. Cassandra Kraaijenbrink[1], Dr. Liesbeth Simmelink[2], Prof. Dr. Rienk Dekker[2], Prof. Dr. Han Houdijk[1]
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To assess physical exercise capacity a bicycle ergometer test is preferred. For patients with impaired lower limb function (e.g., with a lower limb amputation), it is not possible to use such an ergometer. With an arm-leg ergometer both arms can be used together with the remaining leg muscles to drive the system.

In this project a new arm-leg ergometer prototype was developed based on experiences and user requirements from previous research [1,2] and stakeholder interviews. Usability and validity were assessed by comparing a maximal exercise test on the arm-leg ergometer (one-legged) with a two-legged bicycle ergometer in 19 able-bodied individuals.

Participants reached an average peak power output of 155 W on the arm-leg ergometer, while reaching 294 W on the bicycle ($P<0.001$). The peak VO_2 (ml/min/kg), VE (l/min/kg), HR (bpm), and RPE (0-10) were all significantly lower ($P<0.001$) for the arm-leg compared to the bicycle ergometer.

Participants indicated that they did not feel they reached their maximal exercise capacity and that the coordination of this new type of movement restricted them in doing so.

These results indicate that the current design is not yet optimized to evoke maximal aerobic power with restricted leg function. This is caused by the limited muscle mass available and/or difficulties in coordinating the required movement. Based on these results a next iteration of the design will be developed. For the second round of the evaluation of the prototype, people with lower leg amputations are foreseen as participants.

1.Simmelink et al. PLoSOne,2018

2.Wezenberg et al. PhysTher,2012

I008

First experience with rehabilitation after implantation of an epidural spinal cord stimulator in a patient with complete spinal cord injury

MD Anke Maas[1], MD Nathalie Draulans[1]
[1]Libra Revalidatie & Audiologie

Topic
Epidural spinal cord stimulation for recovery of gait after spinal cord injury.

Relevance
As epidural spinal cord stimulators (eSCS) are commercially available abroad, we can expect an increase in requests for post-rehabilitation

Current status
This is a single case experience concerning a 31-year-old lady with complete (AIS A) traumatic spinal cord injury, level Th6, since August 2023.
Pre-implantation she experienced severe neuropathic pain and spasticity refractory to oral medication and was wheelchair dependent with difficulty to perform transfers due to poor trunk stability.
In February 2024 a lumbar eSCS was implanted abroad. After intensive inpatient rehabilitation abroad, she achieved walking with a walking frame for a few steps with guidance of two therapists. We were asked to continue gait rehabilitation.
To gain more insight in the effects of the stimulator, surface EMG analysis was performed, showing mainly in the quadriceps signs of voluntary and involuntary activity. Walking was not achievable during the test. Spasticity and pain were reduced to an acceptable level. Physiotherapy is ongoing. Patient is able to stand between bars. Gait training will start. But literature about prognosis to help set achievable goals is lacking.

Plan of action
In an era of fast evolving technological innovations, it is challenging to keep rehabilitation medicine up to date. More research is needed to investigate mechanisms and efficacy of this intervention and to investigate the role of pre- and post-rehabilitation.
In our case, training is in progress and AIS-score and surface EMG (gait)analysis will be repeated.

I009

Prediction of length of stay and content of clinical spinal cord injury rehabilitation

PhD, MD Marike Maijers[1], MSc Suzanne Romviel[1]
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Topic: Prediction of length of stay and treatment content in clinical spinal cord injury rehabilitation based on historical admission data of Reade.

Relevance: To continue providing clinical spinal cord injury rehabilitation in the future, it is important to utilize increasingly scarce resources and personnel as efficiently as possible. Predictability of the length of stay and required treatment program at the beginning of admission can help achieve this. Furthermore, patients have expressed a desire to know the duration and details of their rehabilitation program early in their admission

Current Status: At Reade, we have been collecting data on spinal cord injury patients in the AMSCCI (Amsterdam Spinal Cord Injury) database for over 10 years. Using historical data from 2019 to 2023, we identified patterns in functional outcomes and lengths of stay. An analysis of data from 177 patients revealed predictors of stay length and treatment requirements. This information has enabled us to develop tailored treatment programs with appropriate lengths of stay and content. In March 2024, we began implementing these new treatment programs and adjusted our consultation structure accordingly.

Plan of Action: Starting March 2024, we collect data on admitted patients and their chosen treatment programs while evaluating lengths of stay and any deviations from planned treatments. This ongoing data collection will help us further refine and optimize our treatment programs, ensuring they are better tailored to individual patient needs. Furthermore we aim to develop similar treatment programs for rehabilitation for chronic lesions and outpatient rehabilitation.

I010

Implementing and evaluating a robotic device for additional arm/hand training in severely affected stroke patients during early-stage rehabilitation

PhD Gerdienke Prange[1,2], MSc B.M. Fleerkotte[3], BSc J. Koppelman[3], MD, PhD J.F.M. Fleuren[1,3], Prof., MD, PhD J.S. Rietman[1,2,3]

[1]Roessingh Research and Development, [2]University of Twente, Department of Biomechanical Engineering, [3]Roessingh, Center for Rehabilitation

Topic

Implementing and evaluating robotic device for additional arm/hand training in severely affected stroke patients directly after rehabilitation admission

Relevance

Increasing therapy intensity improves chances for improving arm/hand function (AHF) after stroke, but options to train severely affected AHF are limited. Robot-assisted training supports patient engagement in active training early post-stroke. We aim to inform clinicians/managers about experiences and evidence of implementing advanced technology in neurorehabilitation.

Current status

InnovationLab is Roessingh's ecosystem for implementing care technology in physical/occupational therapy using a stepwise approach: scouting – trialling – employing – embedding. Following this process, with positive user experiences after 2-month trial, resulted in choice for ArmeoPower (Hocoma).

After defining treatment modules and selection criteria (SAFE=1) and training 10+ therapists, ArmeoPower was employed as 3-week module directly after admission. ArmeoPower can be continued/started in 6-week schedules during in-/out-patient setting as decided in multi-disciplinary patient reviews. The implementation and its outcomes are being evaluated. Currently, 10 patients have been followed, 2 of whom stopped prematurely (early discharge and shoulder pain). The defined selection criteria seem appropriate, represented by severely-moderately affected AHF regarding Fugl-Meyer: 2-49(/66); Motricity Index: 14-80(/99); Action Research Arm Test: 0-29(/57). Currently available pre-post data of 7 patients shows improvement in each outcome measure, achieving clinically relevant change in 50-60%.

Plan of action

Evaluating clinical outcomes continues and expansion with comparative retrospective research is considered. Assessing selection criteria is planned with specific question whether SAFE=0 is also suitable for ArmeoPower. Scaling up to spinal cord injury and/or orthopaedic patients is up next.

I011

Providing meaningful somatosensory feedback during robot-assisted neurorehabilitation to enhance motor learning

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[1]Department of Cognitive Robotics, Delft University of Technology, [2]Department of Rehabilitation Medicine, Erasmus MC

People with Acquired Brain Injury (ABI) can benefit from high-intensity robot-assisted rehabilitation in motivating Virtual Reality (VR) environments. Yet, the impact of such rehabilitation on improvement in Activities of Daily Living (ADL) remains limited. A likely explanation is the lack of meaningful somatosensory information from proprioceptors and touch mechanoreceptors when interacting with tangible virtual objects.
We aim to enhance the transfer of acquired skills during robotic-assisted rehabilitation to ADL by augmenting current upper-limb exoskeletons. We develop haptic hand modules that provide high-fidelity somatosensory information when interacting with simulated objects in VR. These modules enable finger flexion/extension and thumb movements for reach and grasp training. With these technological improvements, users can experience proprioceptive information throughout the arm, from the shoulder to the fingers.
Yet, this proprioceptive information can be masked by the exoskeleton's physical support, like arm weight compensation, which we investigate in a human factors experiment. This masking indicates a need for additional cutaneous information to perceive the properties of virtual objects, such as weight and inertia. Therefore, we develop novel mechanisms that provide skin stretch at the fingertips to deliver this extra cutaneous information. We want to evaluate how this proprioceptive and cutaneous information affects learning complex motor tasks we encounter daily, like carrying a cup of coffee, in a simulated environment.
We hypothesize that adding high-fidelity somatosensory information to robotic-assisted rehabilitation will lead to better learning and transfer of complex motor tasks, especially those incorporating object manipulation, which may improve ADL for people with ABI.

I012

Improving daily structure in people with acquired brain injury

Amy Torn Broers[1,2], Msc Marissa Riemens[1], PhD Desirée Vos-Vromans[1], Manon Riemens[1]
[1]Revant Rehabilitation Centres, [2]Avans Hogeschool

Topic: The purpose of the innovation project is to investigate technologies that support daily structure in patients with acquired brain injury (ABI).

Relevance: Patients with ABI often experience impairments in executive functions, such as planning, time management, and attention. These impairments can significantly impact their ability to perform daily life activities, reducing their independence and quality of life.

Current status: The innovation project identified technology requirements through a literature search, patient observations, and interviews and focus groups with health care professionals. This led to testing three technologies in the clinical setting of Revant rehabilitation centres: CARYbase, Anne4Care, and MEMOplanner. These three technologies are calendar clocks that allow patients' appointments to be managed remotely via an online platform. All technologies feature slightly different functionalities. During the test period, the patients used the technology for 2-4 weeks in their daily routine. The assessment included patient observations, patients' experiences at home, questionnaires for healthcare professionals, and System Usability Scale (SUS) questionnaires for patients. CARYbase proved to be the most effective, demonstrating the highest levels of usability and patient satisfaction.

Plan of action: The CARYbase will be implemented in the clinical settings of Revant rehabilitation centres (Breda and Goes). Future research will focus on the usability of the CARYbase app (Handicalendar app).

I013

Enhancing involvement of significant others in spinal cord injury rehabilitation

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Topic: This project implemented and evaluated an intervention aimed at enhancing the involvement of significant others at the spinal cord injury (SCI) rehabilitation Departments of De Hoogstraat Rehabilitation and the Sint Maartenskliniek.

Relevance: Previous research has shown the need of significant others of patients with an SCI for more attention from the rehabilitation team during first inpatient rehabilitation.
Current status: At the start of inpatient rehabilitation, significant others were actively invited by social workers by means of an appointment card to attend various activities during the rehabilitation program, such as a team meeting, information meeting, and attending therapies. Additionally, they received a screening questionnaire focused on mood and caregiver burden, as well as an informational brochure. The implementation and experiences of significant others, patients and health care professionals were assessed using self-report questionnaires and interviews. A total of 41 significant others and 45 patients completed the questionnaire; 8 significant others and 8 healthcare professionals were interviewed. Healthcare professionals viewed the implemented intervention as a tool to increase significant others' involvement. In general, significant others found the program components useful. The evaluation identified more and less successful components, and the importance of tailoring the intervention to fit in the existing procedures within the rehabilitation team.

Plan of action: Other SCI centers could assess which components of the program might add value to their team. In the end, involving significant others should be tailored, as their needs vary and change over time. The currently implemented intervention provides a structure for doing so.

I014

The OctoWalker, a walking wheelchair, design and first steps

MSc Anne Brinkman, Msc Phd Gerwin Smit[1]
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Powered wheelchairs provide increased mobility to their user, yet they are not well suited for crossing uneven terrain, poor road conditions and small height differences, like curb stones. This limits the mobility of the user, especially of users who live in regions that are not wheelchair friendly. The aim of this study was to explore the feasibility of developing a walking wheelchair that can cross these challenging obstacles and is affordable for people in both higher and lower income countries, by using a one-degree-of-freedom closed-chain leg mechanism.

A 1:3 scaled prototype was designed and built, 'The OctoWalker'. This innovative prototype has an eight-legged walking mechanism based on the modified Trotbot leg mechanism, powered by two DC motors, controlled via a joystick. Test showed that the scale model successfully performed on flat surfaces, steered left and right, could climb 50 mm curbs, and 28° slopes, without the need of additional sensors for stability. The prototype has a higher payload capacity, step length, and speed compared to existing leg-based electric-powered wheelchairs.

Future plans include scaling up the OctoWalker to a full-size model. This model should have improvements in travel range, wheelchair width, and weight, to match current stair-climbing and obstacle-avoiding wheelchairs. The new device could be produced at a relatively low cost, due to the use of relatively simple parts and due to the absence of a complex control system. This potentially offers an affordable increase in mobility, which is very relevant for people in higher, as well as lower income countries.

I015

A bio-inspired flexible immobility design for the treatment of distal radius fractures

ir. Karin Thomassen[1,2], dr.ir. Gerwin Smit[1], Prof. dr. ir. Paul Breedveld[1]
[1]Delft University of Technology, [2]Hogeschool Utrecht

Topic: Reducing rehabilitation time by designing a bio-inspired flexible immobility design for the treatment of distal radius fractures.

Relevance: Bone fractures represent a widespread global health concern. The most common treatment of bone fractures is immobilization by means of a rigid and heavy cast or splint which has a problematic effect on patients' muscles, complicating easy, day to day actions. A long immobilization period can lead to a long rehabilitation period and incomplete recovery, especially for elderly, leaving them with restrictions for the rest of their lives.

Current status: Literature research and field observations and interviews with experts suggest that allowing controlled movements might improve the outcomes of fracture treatment.

Plan of action: Our aim is to design a bio-inspired flexible immobilization device that allows the distal radius fracture, one of most frequent broken bones, to heal and that allows for controlled flexion of the wrist at the same time. Design inspiration comes from light weighted biological structures that can modify their stiffness. The first step is to design bio-inspired structures that are light weighted with modifiable stiffness. We believe this is the next step in the development and implementation of the bio-inspired flexible immobilization design that will lead to a reduction in rehabilitation time and an increase in the quality of life of the patient during and after the fracture treatment.

I016

Energetic: A multidisciplinary rehabilitation self-management group program in primary care

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The rehabilitation self-management group program called Energetic (NL: Energiek) was developed at Radboudumc Nijmegen, the Netherlands, for individuals with a neuromuscular disease and chronic fatigue. Energetic aims to improve participation by 1) aerobic exercise training, 2) education about exercise training 3) self-management training in applying energy conservation strategies and 4) implementation of behavioral change in daily life and relapse prevention. The working elements of Energetic are: interdisciplinary collaboration, group treatment, education, individual goal setting and action planning, implementation in daily living and attention to relapse prevention. A randomized controlled trail investigating the effectiveness showed that the Energetic program improves social participation and physical fitness.

The aims of current implementation study are 1) investigate how to make the program accessible for a large group of individuals with a chronic neurological disease and fatigue in the Netherlands; and 2) learn from the facilitators and barriers for implementation in three regions in the Netherlands.
A participative action research is used to actively involve the professionals in each region to organize the Energetic program. They received training and recruited potential participants. Currently, the first implementation steps have been taken and several cross-regional factors and differences are identified. After the program facilitations and barriers for implementation will be further evaluated as well as the experiences from the therapists and participants of the Energetic program. In October 2025 we will present these facilitations and barriers.

I017

Towards a better understanding of post-stroke recovery: the CONTRAST consortium

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Topic: Traditionally, acute stroke interventions are evaluated using the 7-point modified Rankin Scale at three months post-stroke. Long-term assessment of stroke management may require a more detailed and responsive outcome measure.

Relevance: The CONTRAST consortium is a unique collaboration between acute stroke and rehabilitation research. This interdisciplinary teamwork will collect more detailed data on the long-term effect of acute stroke management and allows coupling of early clinical, neuroimaging and fine-grained long-term outcomes of recovery. This will enable the development of prediction models to improve triage and tailored rehabilitation treatment.

Current status: In line with (inter)national stroke recovery and rehabilitation guidelines, we defined a comprehensive “minimal dataset” at the level of function, activity, and participation. The collection of patient-reported outcomes in this minimal dataset is currently underway in acute stroke trials and registries within the CONTRAST consortium, with an inclusion target of 900 patients.

Plan of action: A subset of patients will be measured onsite for in-depth profiling using validated clinical scales. This “extended measurement set” will include standing balance, walking, and upper-limb performance assays for quality of movement. An online cognitive assessment will be used to quantify attention, verbal memory, and executive functioning. These more sensitive measurements may provide better understanding of post-stroke recovery and refinement of prediction models. This unique dataset will be made available to researchers upon request, in accordance with the FAIR Data Principles.

I018

Simulating exoskeleton walking with able-bodied participants – a testing platform for exoskeleton development

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This project aims to develop a testing platform to simulate exoskeleton walking with able-bodied participants, and allows them to experience how paralyzed people walk with exoskeletons. The new device has a seat for the participants to sit on. It also has two rigid legs, which the participants can use to walk. The feet of the participants are placed on a foot rest and are not in contact with the ground or the exoskeleton legs. The exoskeleton legs have a reciprocating mechanism which makes one leg moves forward when the other leg moves backward, and vice versa. The new exoskeleton simulator is intended to serve as a platform for testing exoskeletons and passive orthoses with able-bodied participants.
This project is expected to enhance orthotic testing and development for people with paraplegia by allowing health professionals and engineers to experience walking without relying on their own legs. This will lower the testing burden on patients and facilitate quicker development cycles, which will lead to better devices for patients.
The device was tested by ten able-bodied individuals of varying heights, who used crutches for balance while walking. All participants managed to take at least a few steps, with nine successfully walking at least 6 meters, achieving an average speed of 0.021 m/s.
Future improvements will focus on reducing the device's weight (currently 26.1 kg) and improving the simulated walking speed. Currently, a second generation prototype is under development.

I019

Robotic Assessment of Stroke: The Shoulder Elbow Perturbator

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Physicians use assessment scales such as the Modified Ashworth Scale to assess the motor impairment of stroke patients. The results of these scales are however subjective and vary per physician. Robotic assessment of motor impairment combined with system identification (sys.id) provides an objective measurement tool that can differentiate between intrinsic and reflective properties of the upper arm. These properties contribute to an accurate measure of muscle weakness, spasticity, abnormal synergy or joint viscoelasticity.

Usage of the Shoulder Elbow Perturbator (SEP) combined with sys.id creates the possibility of a more accurate determination of the cause of motor impairment. The physician can use this improved measure to create an optimized treatment plan and track the progress of a patient during the treatment. The objective of the research line is that this leads to a faster or enhanced patient recovery.

Previous studies, including those by van der Velden et al., demonstrated the performance and clinical relevance of the SEP for both the classical and sys.id protocols. These findings support its potential for broader clinical application.

The controller of the SEP will be improved and extended making it possible to smoothly transition from free movement to perturbation signals such as multisine, pseudorandom binary sequence or pulse train. This will contribute to more accurate measurements and a reduction in testing time. The tool will be extended to assess other joints and an affordable version of the SEP will be designed to make clinical application possible. We invite discussion on these developments and exploring further directions.