Presentation type: 60 mins - Instructional Session

A1: International Society of Wheelchair Professionals' (ISWP) learning modules for wheelchair service providers.
Ms. Amira Tawashy, Dr Mary Goldberg, Dr Lee Kirby, Dr Paula Rushton

B1: The rehab role of palliative care in support of women with SCI/D and breast cancer
Ms. Jean Minkel, Dr Bonita Sawatzky

C1: Blazing Trails! Assessment of All-Terrain Wheelchairs for Off Road Access
Ms. Kendra Betz

D1: The intricacies of posture, vision and mobility: The developmental trajectory of self-initiated mobility
Dr. Teresa Plummer

E1: Choosing the Right Mobility Device for Infants and Children
Dr Ginny Paleg

A2: The benefits of connected chair technology to power wheelchairs users and other stakeholders. (30min)
Dr Rachel Fabiniak, Karin Leire
Followed by a 30 min LIVESTREAM panel discussion around ethics, privacy and applications across the sector.
Karin Leire, Dr Mark Schmeler, Dr Fi Graham, Chair: Professor Rachael McDonald

B2: Changes with Age – Giving You the Justification for Custom Manual Wheelchairs for the Geriatric Client
Dr Christie Hamstra

C2: Training Caregivers to Assist with Manual Wheelchair Skills: An Instructional Session
Dr R. Lee Kirby, Cher Smith

E2: Applying Disability Studies and Critical Disability Theory to Mobility Technology Research: Tensions Explored, Lessons Learned
Dr. Heather Feldner

C3: Development and Implementation of an Evidence-Based Guideline for Introducing Powered Mobility to Infants and Toddlers
Dr. Heather Feldner, Dr. Teresa Plummer

C4: Access & Independence for Everyone – Enabling independence through power wheelchairs and alternative controls.
Mr Scott Staunton

E3: Mobile shower commode chairs for people with larger bodies.
Emma Friesan

E4: Cubro Gold Sponsor's session.
Helen Murray, Garry Stanners

A6: The Art and Science of community Mat Evaluations. Toolbox tips to overcome identified barriers.
Ms Amy Bjornson

B6: Pressure Injuries are Ageist! Why is Ageing a major risk factor for Pressure Injury development?
Rachel Fabiniak

C6: The Wheel Story: Impact of Wheels and Tires on Manual Wheelchair Performance and Propulsion Efficiency
Curt Prewitt

D7: Made to Move - I am. The use and value of seated balance based movement technology and how moving with balance can change a life.
Mr Marcus Thompson

E6: The Impact of Seating and Positioning on Respiratory System Function
Ms. Lois Brown

A10: Where is the Pelvis? Where is the Head? An advanced look at postural support.
Jean Minkel

C10: Kick the Tires! Evaluating Wheeled Mobility Devices for Performance & Safety
Ms. Kendra Betz

D11: The paediatric powered wheelchair standing device: a historical perspective
Dr. Lisa K. Kenyon, Dr. Bonita Sawatzky

E9: A Pilot Study Comparing Postural and Functional Skills in Supportive vs. Unsupportive Wheelchair Backs
Dr. Jessica Pedersen, Dr Cynthia Smith

A11: C1 South Gold Sponsor's session
Facing Forward – What's Up with Head and Neck Supports
Stephanie Tanguay OT/L, ATP

D12: Complex wheelchair and seating positioning: The postural assessment process!
Joana Santiago

D13: Time for a Switch: The Evaluation of Non-Proportional Drive Controls
Mr John "Jay" Doherty

E14: Permobil Platinum Plus Sponsor's session:
Understanding the Design of Manual Wheelchairs from an Engineer's Perspective.
Sam Baker

A13: Supporting the growth and development of wheelchair and seating therapists: a coaching approach
Mrs Maria Whitcombe-Shingler, Mrs Jo Blaiklock

A14: Can user centered design be used to develop assistive technology? Testing a framework for collaboration
Miss Hana Phillips, Associate Professor Gianni Renda, Professor Rachael McDonald

B11: Permobil Platinum Plus Sponsor's session
Smart Drive: New Updates and their Clinical Applications
Sam Baker, Rachel Fabiniak

B12: Get me out of here, Manual Wheelchair Power add on Devices
Mr Mitchell Stone

C13: The measurement of postural asymmetry in non-ambulant adults with cerebral palsy.
Dr Carlee Holmes

C14: Night- time positioning: Systematic approach to successful outcomes.
Joana Santiago

D16: Permobil Platinum Plus Sponsor's Session:
Introducing the New ROHO Hybrid Select
Terri Davies, Rachel Maher

E17: Listening to their voices: Children's and families' perspectives of power mobility use
Dr. Lisa K. Kenyon

E18: Considerations for Determining Optimal Manual Wheelchair Configuration – what are the "non-negotiables"?
Deb Wilson, Sandie Grant

A16: Using power mobility as a therapeutic intervention to support development and learning across the lifespan
Dr Lisbeth Nilsson, Dr Lisa Kenyon

B15: Wheelchair Educators' Package: A tool to enhance wheelchair education globally.
Paula Rushton, Mary Goldberg, Yohali Burrola-Mendez, Jon Pearlman, Debbie Wilson, Rosie Gowran, Sara Munera

C17: How Do People Actually Use Their Manual Wheelchairs, and What Really Matters?
Curt Prewitt

D20: Strategies for Online Training in Seating & Mobility Complimented with Telehealth
Dr. Mark Schmeler, Ms. Madelyn Betz

A18: Diversifying Standing Opportunities for Children: Clinically reasoning the options and justifying their funding
Mr Jamie Cockle

B17: Culturally Safe Practice in Aotearoa New Zealand as a Wheelchair and Seating Therapist
Miss Jazz Fox, Mrs Liz Turnbull

C19: Balancing the options – Managing Pelvic Obliquity in Seating
Ms Angela Rowe, Ms Kim Vien

D22: Understanding the lifespan postural issues of non-ambulant adults with CP, as measured with the Goldsmith Indices of Body Symmetry.
Carlee Holmes

A1: International Society of Wheelchair Professionals' (ISWP) learning modules for wheelchair service providers.

Ms. Amira Tawashy[1], Dr. Mary Goldberg[2], Dr. Lee Kirby[3], Dr. Paula Rushton[4], Ms Samantha Shann[5]
[1]Dalhousie University, Halifax, Canada. [2]University of Pittsburgh, Pittsburgh, USA. [3]Nova Scotia Health Authority, Halifax, Canada. [4]University of Montreal, Montreal, Canada. [5]World Federation of Occupational Therapists, Newcastle, United Kingdom
Ms. Amira Tawashy, Occupational Therapist
Dr. Mary Goldberg, Associate Professor
Dr. Lee Kirby, Physician
Dr. Paula Rushton, Associate Professor
Ms Samantha Shann, President

Learning objectives

1. Describe the content of the International Society of Wheelchair Professionals (ISWP) modules, including similarities and differences from 2012 World Health Organization (WHO) Wheelchair Service Training Package (Basic Level);
2. Discuss the development process of the ISWP modules;
3. Provide feedback on the content and development process

Abstract

The WHO estimates that less than 20% of the 100 million people in the world who need a wheelchair have access to an appropriate one that meets their needs. Inappropriate wheelchair service provision has adverse effects on safety, health, and other basic human rights. Limited training allocated to wheelchair service provision contributes to inappropriate wheelchair service delivery.

The ISWP has a mission to serve as a global resource to wheelchair service standards and provision through education and information exchange. In its aim to professionalize wheelchair services around the world, ISWP promotes the WHO Guidelines on providing manual wheelchairs in less resourced settings. Expert opinion provided the basis for these guidelines and related WHO educational packages that have been the primary basis of ISWP's hybrid training (part on-line, part in-person) of wheelchair service providers. The Integration Committee of the ISWP was charged with reviewing the content of the Basic Package with a view to making any necessary revisions to ISWP materials to reflect updated knowledge and practice. As such, the ISWP has integrated current literature and evidence-based guidelines into the ISWP materials to create an up-to-date online, interactive learning experience. This process was completed in an iterative manner through consensus of an international group of content experts. The ISWP's online modules can be used either through instructor facilitation or asynchronous self-study.

This session will provide information on the development and content of the updated ISWP learning resources for wheelchair provision. The participants will explore select on-line modules and be encouraged to discuss the process and content with questions and comments in both small and large group discussions.

Content references

1) Toro ML, Eke C, Pearlman J. The impact of the World Health Organization 8-steps in wheelchair service provision in wheelchair users in a less resourced setting: a cohort study in Indonesia. BMC Health Serv Res. 2016 Jan 22;16:26. doi: 10.1186/s12913-016-1268-y. PMID: 26801984; PMCID: PMC4722611.

2) Fung K, Miller T, Rushton PW, Goldberg M, Toro ML, Seymour N, Pearlman J; International Society of Wheelchair Professionals. Integration of wheelchair service provision education: current situation, facilitators and barriers for academic rehabilitation programs worldwide. Disabil Rehabil Assist Technol. 2020 Jul;15(5):553-562. doi: 10.1080/17483107.2019.1594408. Epub 2019 Apr 23. PMID: 31012755.

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4) Guidelines on the Provision of Manual Wheelchairs in Less Resourced Settings. Geneva: World Health Organization; 2008. PMID: 23785745.

Presenter biography

Amira Tawashy is an occupational therapist with a special interest in wheelchair provision – particularly in under resourced settings. She has over 15 years of clinical rehabilitation experience working with individuals who have sustained spinal cord injuries and traumatic brain injuries. Amira currently teaches in the Occupational Therapy program at Dalhousie University and travels with the Walkabout Foundation to provide wheelchairs and wheelchair education to individuals living in Eastern Africa.

R. Lee Kirby received his MD degree from Dalhousie University in Halifax, Nova Scotia, Canada. His specialty training in Physical Medicine and Rehabilitation was carried out at the University of Washington in Seattle, Washington, USA, at Dalhousie University and at Stoke Mandeville Hospital in England. He is a Professor in the Division of Physical Medicine and Rehabilitation in the Department of Medicine at Dalhousie University with a cross-appointment in Community Health and Epidemiology. His primary research interest is the safety and performance of wheelchairs. He has held research grants from a number of national and international funding bodies. He has authored or co-authored 2 books and 168 papers in peer-reviewed journals. His Google Scholar profile notes 6,199 citations. He heads the team that developed the Wheelchair Skills Program, a low-tech, high-impact training program that is relevant for both more- and less-resourced settings.

Paula Rushton is an Associate Professor in the School of Rehabilitation, Occupational Therapy Program at the University of Montréal and a researcher at the CHU Ste-Justine Research Center. Her research is focused on measurement, intervention, knowledge translation and education related to improving the wheeled mobility of both adults and children through an improved wheelchair service provision process. From the measurement, intervention and knowledge translation perspective, Rushton's expertise lies in the domains of wheelchair skills and wheelchair confidence. From the education perspective, Rushton has been working with the International Society of Wheelchair Professionals to enhance wheelchair content in health care professional university curricula globally.

B1: The Rehab Role of Palliative Care in support of women with SCI/D and Breast Cancer

Jean Minkel
Independence Care System, Brooklyn, NY, USA
Dr Bonnie Sawatzky, PhD
Associate Professor, Department of Orthopaedics
International Collaboration on Repair Discoveries (ICORD)
University of British Columbia, Canada

Learning objectives

Upon completion of this workshop, participants will be able to:

1. Define the differences between Palliative Care and Hospice Care.
2. List the four domains of inquiry when following the principles of a Palliative System of Care.
3. Define the physical, psychological, spiritual and support / care partner impact of Breast Cancer treatment on women with a SCI/D

Abstract

The U.S. National Consensus Project for Quality Palliative Care defines palliative care as: “Beneficial at any stage of a serious illness. Palliative care is an *interdisciplinary* care delivery system designed to anticipate, prevent, and manage physical, psychological, social, and spiritual suffering to optimize quality of life for patients, their families and caregivers. Palliative care can be delivered in any care setting through the collaboration of many types of care providers"

What are ‘palliative care concerns”?
These concerns are patient specific and can only be identified when there has been an honest and direct conversation exploring the patient’s strengths and suffering in the areas of:

- Physical Health and Functioning
- Psychological Health and Functioning
- Social Needs and Available Supports
- Spiritual Needs and Supports

A thoughtful inquiry, through unhurried conversation(s), into these four domains of a person’s life, is essential in ordered to be aware of and mindful of the person’s quality of life. Equally valued in the Palliative Care philosophy, is an inquiry into and support of the quality of life of the client’s families and caregivers; who are often bearing a large burden; too often without adequate support.
This workshop will present the components of the Palliative model of care followed by the application of this model via an interview. Dr. Sawatzky will share her lived experience of being a woman with an SCI/D and a diagnosis of breast cancer, along with her research knowledge of SCI/D. Participants will be guided through some of the common secondary impairments experienced by breast cancer survivors and their additional impact on function and well-being of women with SCI/D. Participants will see that palliative care through an interdisciplinary approach. This includes accessing rehab therapies and devices to assist in functioning, as well as mental health and social supports to optimize outcomes.

Content references

1) Sawatzky B, Edwards C, Walters-Shumka A, Standfield S, Shenkier T, Harris S. A Perspective on Breast Cancer in Women with Spinal Cord Injuries. *Spinal Cord* 2021. DOI: 10.1038/s41393-021-00628-2

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Presenter biography

Ms. Minkel is a physical therapist and master clinician well recognized for her work in Assistive Technology. She is currently the Senior Vice President at ICS - Independence Care System, a not for profit, care management agency for persons living with a physical disability in New York City; where she also leads the, *On A Roll* seating clinic. Jean has been an invited keynote speaker at conferences in the US, Canada, Australia, New Zealand and Japan. She is a published author, including many peer reviewed journal articles and most recently, she co-edited, with Michelle Lange, the newly published textbook, Seating and Wheeled Mobility – a Clinical Resource Guide. The A.T. community has recognized Jean for her contributions by awarding to her, the RESNA Fellow award in 1995 and the Sam McFarland Mentor Award in 2012.

Bonita Sawatzky is an Associate Professor in the Department of Orthopaedics at the University of British Columbia. Dr. Sawatzky has worked extensively with people with spinal cord injury, including traumatic and non-traumatic populations, as well as adults and children. The focus of her research has been to find ways to make mobility easier and more efficient for those with spinal cord injuries with over 80 peer reviewed publications. She aims to develop a better understanding of the biomechanics of mobility and identifying ways to educate individuals on how to walk or wheel more effectively. In addition, Dr. Sawatzky has begun to explore more specifically issues related with ageing such as technologies and training for older populations, as well as understand functional changes with ageing of individuals with rare neuro/orthopaedic conditions. She worked with the Vancouver ISS committee for 18 years and now enjoying working with the OSS organizing committee!

C1: Blazing Trails! Assessment of All-Terrain Wheelchairs for Off Road Access

Kendra Betz
University of Pittsburgh, Denver, USA
Physical Therapist

Learning objectives

At the end of the session, participants will be able to:

1. Describe three enhanced features of wheeled mobility devices that support access to off-road and extreme terrain environments.
2. Discuss three limitations of wheeled mobility devices designed for all-terrain performance.
3. Review two reasons that consumer cognition and problem solving are critical for safe use of an all-terrain mobility device.

Abstract

Wheeled mobility devices with enhanced function that are intended for off-road or extreme-terrain access are commercially available and pursued by individuals with mobility impairment. Many people pursue an all-terrain wheelchair for recreational pursuits such as hiking, hunting, fishing, golf, or beach access. Others are interested in unique wheelchair features to access personal property, perform yard maintenance or animal care tasks, for farm/ranch work or to just “go for a walk” on terrain that cannot be accessed from their usual wheelchair. For some, an enhanced function wheelchair is appealing for vocational or volunteer work, community participation or hobby interests. While many products offer highly exceptional features that support access otherwise inaccessible environments, objective assessment of the wheeled mobility device and comprehensive evaluation of the wheeled mobility user is critical for determining reliable performance, durability and consumer safety. Common wheelchair provision considerations carry exceptional implications for enhanced function wheelchairs including specific device characteristics, customization options, power seat function capability, controller features, transportation and storage requirements, and interface with other assistive technologies. The consumer evaluation must include cognition, risk management and problem solving abilities in addition to physical, sensory and functional assessment. This session will empower participants with a framework for evaluating all-terrain mobility devices to support an accurate and meaningful assessment of potential benefits and possible limitations for clients who use wheelchairs. Case examples with action photos and video will be utilized to emphasize key points, and audience participation will be facilitated to support a thorough review of the topic. Discussion points will include application of established international test standards, relevance of current published literature and needs for further study, product regulation and coding, funding options, ethical considerations and essential consumer education and training to optimize safety and mitigate risks associated with enhanced function mobility device compromise or failure.

Content references

1) Mhatre A, Martin D, McCambridge M, Reese N, Sullivan M, Schoendorfer D, Wunderlich E, Ruchman C, Mahilo D, Pearlman J. Developing product quality standards for wheelchairs used in less-resourced environments. *African J of Disability*. 2017.

2) Kirby RL, Miller WC, Routhier F, Demers L, Mihailidis A, Polgar JM, Rushton PW, Titus L, Smith C, McAllister M, Theriault C, Thompson K, Sawatzky B. Effectiveness of a Wheelchairs Skills Training Program for Powered Wheelchair Users: A randomized controlled trial. *Arch Phys Med Rehabil*. 2015; 96 (11): 2017-26.

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Presenter biography

Kendra Betz is a Physical Therapist and RESNA Assistive Technology Professional who is speaking at OSS as adjunct faculty for the University of Pittsburgh. She has also worked for the Veterans Health Administration in the USA since 1993. Kendra's areas of clinical specialization include SCI rehabilitation, assistive technology, adaptive sports, and patient safety. Kendra teaches regularly at national and international forums, leads national projects for medical device evaluation and has developed innovative programs to provide specialized support for adaptive athletes. Her expertise is recognized in the USA by induction into the National SCI Association Hall of Fame, the Air Force Association's Employee of the Year Award, and the Clinical Excellence and Distinguished Lecture Awards from the Academy of SCI Professionals.

D1: The intricacies of posture, vision and mobility: The developmental trajectory of self-initiated mobility

Dr. Teresa Plummer
Belmont University, Nashville, USA
Associate Professor

Learning objectives

1. Describe the visual structures and functions of typical infants/children.
2. Understand the relationship between visual, postural and mobility milestones and how this impacts self-initiated mobility.
3. Discuss ways in which postural and mobility interventions can be utilized to improve visual functions for children with mobility impairments.
4. Describe the importance of self-initiated mobility for infants 6-36 months.

Abstract

This instructional session will present an overview of typical infant development. A comparison will be made between typical and atypical development for infants with developmental and mobility delays. A review of the neurological structures and functional skills related to posture, mobility and vision will be discussed and linked to the need for multi-modal interventions for mobility. Because the first 6 months of life are the most sensitive and the first 6 years the most significant for developmental of the visual system, this instructional course will highlight the need for mobility interventions for infants and discuss how this specifically relates to visual development. Further, this course will stress the importance of an inter-disciplinary collaboration of therapists and caregivers to develop effective strategies that can provide for integration of "therapy" that supports visual and motor development into everyday life activities. We will discuss positioning, handling, environmental, and mobility modifications to enhance the progress and participation of infants with developmental delays.

The intricate link between all sensorimotor systems will be explored to demonstrate how visual development relates to postural control and how postural control relates to mobility.

An understanding of these topics will aid participants in understanding the need for self-initiated mobility for infants and recommending appropriate mobility interventions at an early age

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Presenter biography

Dr. Teresa Plummer, PhD, OTR/L, ATP, CEAS, CAPS holds credentials as an Assistive Technology Professional (ATP), Certified Ergonomic Specialist (CEAS) and Certified Aging in Place Specialist (CAPS). Dr. Plummer has been a practicing occupational therapist since 1979 and has been an invited presenter to Dublin, Switzerland, Singapore, Buenos Aires and many state and national conferences. She has assisted in the development of wheelchair service practice guidelines for North America, Europe and Australia. She also works the International Society of Wheelchair Professionals, selected to serve on the Educators' Package Development to create sustainable evidence -based curriculum for OT/PT programs worldwide. Her areas of research center around participatory methods, qualitative research and users' perspectives of mobility devices. Her recent works has been with the Explorer Mini by Permobil A device cleared by FDA for infants 12-36 months. Her work now centers around creating practice guides and developing research protocols for clinical testing.

E1: Choosing the Right Mobility Device for Infants and Children

Dr Ginny Paleg
Montgomery County Infants and Toddlers Program, Rockville, USA

Learning objectives

1. Understand how to identify which infants can benefit from early mobility

2. Evidence for power mobility

3. Who can self propel

4. Evidence for upright supported stepping devices

Abstract

The General Movement Assessment and Hammersmith Infant Neurological Exam score allows us to identify which infant will most likely have lifelong sensory and motor impairments at 2-5 months of age. Using the Gross Motor Function Classification System (GMFCS) level, physical therapists can predict very early which child will most likely benefit from early augmented mobility interventions. In this session, speakers will present our research on power mobility, who can self propel and gait trainers, support walkers and a dynamic mobility system.

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Presenter biography

Ginny Paleg is a pediatric physiotherapist from Silver Spring, Maryland, USA. For the past 17 years, she has worked with children aged 0-3 years in homes and childcare. Ginny earned her master's degree in physical therapy at Emory University and her DScPT at the University of Maryland Baltimore. Ginny specializes in posture and mobility assessment and interventions for children at GMFCS Levels IV and V. She is certified in Prechtl General Movement Assessment (GMA) and the Hammersmith Infant Neurological Exam (HINE) and trained in Routines Based Interventions (McMaster) and coaching (Sheldon and Rush). She has published over 15 peer-reviewed journal articles on standing, gait trainers, and power mobility. She is the lead author for the American Academy of Cerebral Palsy Hypotonia Care Pathway. She is the Incoming Chair of the AACPDM Communications Committee (2021-2023). Her latest publications are a case study on a child with "treated type 1 SMA" and a study on weight bearing in various positions in 3 models of standers.

A2: The Benefits of Connected Chair Technology to Power Wheelchairs Users and Other Stakeholders

Rachel Fabiniak
Permobil, Sydney, Australia
Director of Clinical Education - Asia Pacific

Karin Leire
Permobil, Stockholm, Sweden
Vice President Research and Innovation

Learning objectives

1. Describe 2 examples about how data from connected chair technology can benefit wheelchair users, carers or clinicians.
2. Discuss 2 examples about how data from connected chair technology can benefit technicians, manufacturers, researchers or policy makers.
3. Explain 1 way how connected chair technology could be used in your practice.

Abstract

Knowledge on wheelchair users is generally derived from smaller heterogeneous samples. Big data are available via connected chairs and have great potential to extend this knowledge. This course will discuss the benefits of using connected data for different stakeholders by giving examples of how these data are being used.

Currently there are 6000 power wheelchair users connected. From these data, two types of insight can be distinguished: performance insights about how technology is functioning and behaviour insights about how technology is being used. Several functionalities can be analysed, such as the distance driven, battery health, the use of elevation, tilt, recline and standing functions.

Stakeholders that can benefit are:

1) Wheelchair users and carers: from having information about how they are using their chair via apps that show how long they can drive with the current battery status or when there is an error and may need service.

2) Clinicians: can follow-up with clients on how much they are using their power seat functions to access identified key positions.

3) Service technicians: can utilise a proactive service delivery model with insights that decrease the risk of wheelchair breakdown and decrease the amount of wheelchair downtime if a repair is needed.

4) Wheelchair manufacturers: can use data to inform the design of new products. For example, by analysing the most common combination of actuator angles used in standing, manufacturers can set the optimal ranges for new wheelchairs.

5) Researchers: using connected data in collaborative projects can be linked to clinical data, results from other measurements or to document compliance in interventions.

6) Policy makers: data showing evidence for the benefits of power wheelchair use can inform insurance policy coverage decisions.

Content references:

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Presenter biography

Rachel Fabiniak began her studies at The Georgia Institute of Technology, where she graduated with her Bachelor of Science in Biology in 2009. Rachel then went on to receive her Doctorate in Physical Therapy from Emory University in 2013.

After receiving her doctorate, Rachel went into clinical practice as a physiotherapist in the Spinal Cord Injury Day Program at Shepherd Center in Atlanta, Ga. There she developed a passion for seating and mobility which ultimately led to her career with Permobil in 2018. In 2020, Rachel became Director of Clinical Education for Asia-Pacific.

Karin Leire has got a master's degree in biomedical sciences from University of Uppsala, Sweden. She has got a 20-year experience in clinical research and evidence-based medicine for both pharmaceuticals and medical devices. She is currently the Vice President of Research & Innovation at Permobil group, defining and leading the research roadmap, gathering customer insights from direct interactions with stakeholders and large datasets from the connected

B2: Changes with Age – Giving You the Justification for Custom Manual Wheelchairs for the Geriatric Client

Dr Christie Hamstra
Motion Composites, St. Roch de l'Achigan, Canada
Clinical Education Specialist

Learning objectives

1. Discuss two musculoskeletal changes associated with the normal aging process.
2. Describe two distinct adjustments to a manual wheelchair to counteract changes seen in a geriatric client.
3. Explain two justification rationales where the geriatric client would benefit from an ultralightweight wheelchair

Abstract

The elderly client can be easily overlooked as one who could benefit from a custom fitting or adjustable manual wheelchair. They are too often provided the “basic” wheelchair without much thought on the part of the clinician because it requires little to no work to justify. The normal aging process causes losses in strength and muscle mass, decreased ROM, and postural changes. These normal aging decreases can be intensified by disease processes that require wheelchair dependence. Having a manual wheelchair that can be custom fit in all aspects including seating will give the user optimum positioning for function.

Decreased overall strength, especially in upper extremities, including loss of muscle mass is well documented as an age-related change. Increases in kyphosis, and other postural changes, combined with decreased strength along with disease processes can make self-propelling a manual wheelchair difficult for an elderly client, if not placed in optimum position. The geriatric population is often overlooked as a group requiring custom fitting or modifications, and they end up with poorly fitting, poorly performing equipment, which as a result can lead to decreased mobility, increased morbidity and even mortality.

This session with look at normal physiological changes that come with aging, and how proper wheelchair seating, base selection, fitting, and set up, can and should be justified for the geriatric client. One size fits all should not be used for a geriatric client who will utilize the wheelchair for an extended period of time (most likely longer than 6 months). A custom manual wheelchair, fit to client specifics can provide optimum outcomes and hopefully better quantity and quality of life for the geriatric client.

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Presenter biography

Christie Hamstra is a Clinical Education Specialist with Motion Composites and has experience as both a Physical Therapist in seating clinic and ATP as a supplier in the area of seating and mobility and wheelchair prescriptions. Christie received her Masters of Science in Physical Therapy from Andrews University, and a transitional Doctorate of Physical Therapy from Oakland University, and yearly teaches complex rehab technology to current students. As Christie has worked in many settings, she enjoys sharing her expertise and passion with fellow clinicians. Christie has provided education in multiple areas of the United States and Canada, and has presented at The European Seating Symposium, The Canadian Seating and Mobility Conference, and The International Seating Symposium.

C2: Training Caregivers to Assist with Manual Wheelchair Skills: An Instructional Session

R. Lee Kirby[1], Cher Smith[2]
[1]Dalhousie University, Halifax, Canada. [2]Nova Scotia Health, Halifax, Canada
R. Lee Kirby, Professor
Cher Smith, Occupational Therapist

Learning objectives

On completion of this workshop, attendees will be able to:

1. Describe how to safely and effectively perform a set of 23 wheelchair skills in the capacity of a caregiver assisting a manual wheelchair user.
2. Assess caregivers' capacity to assist manual wheelchair users in performing a set of 23 wheelchair skills.
3. Identify motor-skills-learning principles and training tips that may be useful for training caregivers to perform a set of 23 wheelchair skills.

Abstract

Many manual wheelchair users require the assistance of caregivers to effectively and safely manage obstacles in their everyday lives. Unfortunately, there can be negative health impacts on caregivers. Although research evidence is beginning to accumulate on the caregiver role in general, the assessment and training of caregivers to assist in the performance of wheelchair skills have received little attention. The Wheelchair Skills Program (WSP) (www.wheelchairskillsprogram.ca) provides such protocols. This workshop will provide participants with an opportunity to observe and discuss a set of 23 caregiver skills including preferred techniques, assessment methods and training principles.

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Presenter biography

R. Lee Kirby received his MD degree from Dalhousie University in Halifax, Nova Scotia, Canada. His specialty training in Physical Medicine and Rehabilitation was carried out at the University of Washington in Seattle, Washington, USA, at Dalhousie University and at Stoke Mandeville Hospital in England. He is a Professor in the Division of Physical Medicine and Rehabilitation in the Department of Medicine at Dalhousie University in Halifax, Nova Scotia, Canada with a cross-appointment in Community Health and Epidemiology. His primary research interest is the safety and performance of wheelchairs. He has held research grants from a number of national and international funding bodies. He has authored or co-authored 2 books and 168 papers in peer-reviewed journals. He heads the team that developed the Wheelchair Skills Program, a low-tech, high-impact training program that is relevant for both more- and less-resourced settings.

Cher Smith did her Occupational Therapy training at the University of Toronto and received her MSc Degree in Kinesiology from Dalhousie University. She is a member of the Dalhousie University Wheelchair Research Team and acts as the Seating and Mobility Coordinator at Nova Scotia Health in Halifax, Nova Scotia, Canada. She is also an Adjunct Professor in the School of Occupational Therapy at Dalhousie University. She has been working as an OT in research, clinical and educational work for 25 years. In 2002, Cher was awarded the Mundy Award by the Canadian Adaptive Seating and Mobility Association. She has presented widely to national and international audiences.

E2: Applying Disability Studies and Critical Disability Theory to Mobility Technology Research: Tensions Explored, Lessons Learned

Dr. Heather Feldner
University of Washington, Seattle, USA
Assistant Professor

Learning objectives

After attending this session, participants will be able to:

1. Discuss two differences between the medical, social, and political-relational models of disability.
2. Identify three ways in which a medical model of disability underpins pediatric mobility technology provision, despite adoption of more contemporary philosophical beliefs about mobility, disability, and assistive technology.
3. Describe at least two methods and outcomes of a mobility technology research program infused with Disability Studies principles.
4. Evaluate one way that Disability Studies and Critical Disability Theory may be applied to the development of a mobility technology research program or influence clinical practice in the participant's practice setting.

Abstract

Mobility is essential for all children to access their world and achieve self-directed participation in family and community life. However, a complex landscape exists for clinicians and caregivers supporting this goal, especially for young children who may benefit from early mobility technology (MT) intervention. Despite adoption of more contemporary philosophical beliefs about mobility, disability, and technology, challenges to implementation remain, including a focus on walking as an implicitly preferred mode of mobility, shortcomings in the availability and design of pediatric technology, negative perceptions of wheelchairs as a signifier of disability, and accessibility barriers. These issues reflect a medical model view of disability and expose the tension between this traditional rehabilitation approach and a disability studies perspective, which interrogates the able-bodied ideal, situates disability as a social construct, and considers technology use in a more relational context.

This presentation describes how the field of Disability Studies and a political-relational theory of disability underpinned the development and implementation of a novel MT research program at the University of Washington in Seattle, WA, USA. Results from several studies conducted as a part of this research program will be shared, including quantitative device use patterns; qualitative caregiver perspectives of disability and responses to their child's disability/identity, their emerging role as advocates, and their changing views of MT across time; and participatory photo journals that provide visually compelling narratives about technology and community engagement. This presentation will highlight new research evidence that may better prepare clinicians and assistive technology professionals to engage with families around the complex topics of disability and MT as a part of multimodal mobility intervention, as well as to advocate for policy and accessibility change outside the clinic. It will also highlight how critical disability theory can serve as a powerful tool for interrogating both the role of, and reaction to, the introduction of MT in the early stages of family life with a child with a disability.

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Presenter biography

Dr. Heather Feldner is an Assistant Professor in the Department of Rehabilitation Medicine, core faculty in the Disability Studies Program, and an Associate Director of the Center for Research and Education on Accessible Technology and Experiences (CREATE) at the University of Washington in sunny Seattle, WA, USA. Her research is centered at the intersection of mobility, disability, and technology in two primary areas: Perceptions of disability and identity and how these emerge and evolve through technology use in children and adults with disabilities; and in the design and implementation of pediatric mobility technology, considering how attitudes and the built environment affect equity, participation, and device use. Her current work incorporates multidisciplinary, mixed methods, and participatory approaches drawing from her background as a pediatric physical therapist, doctoral work in disability studies, and postdoctoral research in user-centered rehabilitation and design in mechanical engineering.

C3: Development and Implementation of an Evidence-Based Guideline for Introducing Powered Mobility to Infants and Toddlers

Dr. Heather Feldner[1], Dr. Teresa Plummer[2], Ms. Alyson Hendry[3]
[1]University of Washington, Seattle, USA. [2]Belmont University, Nashville, USA. [3]Speech and Movement, LLC, Columbus, USA
Dr. Heather Feldner, Assistant Professor
Dr. Teresa Plummer, Professor
Ms. Alyson Hendry, Speech Language Pathologist

Learning objectives

After attending this session, participants will be able to:

1. Describe two ways that principles of family-centered care and evidence-based practice can inform powered mobility device introduction and use for infants and toddlers with disabilities.
2. Understand the purpose and results of an international Delphi consensus survey in developing an evidence-based guideline consensus document for the introduction of powered mobility to infants and toddlers.
3. Discuss three major components of the guideline consensus document and how they are relevant to clinical seating and mobility provision.
4. Synthesize three benefits of interdisciplinary collaboration for facilitating successful introduction of powered mobility devices for infants and toddlers.
5. Describe how the components of the guideline consensus document may support more rigorous international research and clinical work in the future.

Abstract

It is essential to support emerging mobility and exploration for infants and toddlers with disabilities. One means of enacting this support is via access to, and success with, powered mobility as one aspect of multimodal mobility intervention. Pioneering work in this field has led to promising theory and evidence, defining powered mobility learner stages, developing training tools to facilitate driving skills, and amplifying the important ties between mobility, socialization, and cognition. However, between varying policies, attitudes, access to devices, and device design constraints, there remains little standardization of how to introduce powered mobility to infants in a safe and structured manner during an exploratory stage of learning. With the recent introduction of the Permobil® Explorer Mini powered mobility device, the first of its kind designed for children ages 12-36 months, a unique interdisciplinary opportunity arose to address this gap by developing an evidence-based, family-centered guideline for systematically introducing the Explorer Mini and other powered mobility devices to this age group.

This session will be presented in two parts. Part one will describe the processes of guide development, which included an extensive literature review combined with a Delphi Consensus study undertaken with more than 40 international stakeholders (PT, OT, SLP, caregivers) to identify and prioritize critical elements of powered mobility introduction to infants and toddlers. Delphi study results will be shared and literature from across rehabilitation, psychology, child development, and family-centered care will be highlighted. Part two will present a detailed examination of the completed guideline document. Safety, play and communication recommendations, environmental and sensory approaches, and facilitating

strategies for structured and unstructured learning across multiple developmental domains will be shared. The session will conclude with exploring how this guideline may support clinical practice and research in a variety of contexts to maximize outcomes for infants and toddlers learning powered mobility.

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Presenter biography

Dr. Heather Feldner is an Assistant Professor in the Department of Rehabilitation Medicine, core faculty in the Disability Studies Program, and an Associate Director of the Center for Research and Education on Accessible Technology and Experiences (CREATE) at the University of Washington in sunny Seattle, WA, USA. Her research is centered at the intersection of mobility, disability, and technology in two primary areas: Perceptions of disability and identity and how these emerge and evolve through technology use in children and adults with disabilities; and in the design and implementation of pediatric mobility technology, considering how attitudes and the built environment affect equity and participation. Her current work incorporates multidisciplinary, mixed methods, and participatory approaches drawing from her background as a pediatric physical therapist, doctoral work in disability studies, and postdoctoral research in user-centered rehabilitation and design in mechanical engineering.

Dr. Teresa Plummer, PhD, OTR/L, ATP, CEAS, CAPS holds credentials as an Assistive Technology Professional (ATP), Certified Ergonomic Specialist (CEAS) and Certified Aging in Place Specialist (CAPS). Dr. Plummer has been a practicing occupational therapist since 1979 and has been an invited presenter to Dublin, Switzerland, Singapore, Buenos Aires and many state and national conferences. She has assisted in the development of wheelchair service practice guidelines for North America, Europe and Australia. She also works the International Society of Wheelchair Professionals, selected to serve on the Educators' Package Development to create sustainable evidence -based curriculum for OT/PT programs worldwide. Her areas of research center around participatory methods, qualitative research and user perspectives of mobility devices. Her recent works has been with the Explorer Mini by Permobil, a device cleared by FDA for infants 12-36 months. Her work now centers around creating practice guides and developing research protocols for clinical testing.

Ms. Alyson Hendry, MA, CCC-SLP is a Speech Language Pathologist and Institute for Integrative Nutrition Certified Health Coach. She owns a private practice where she provides speech language pathology services in both English and Spanish for children and their families. Alyson also provides individual and group health coaching for rehabilitation professionals and educators, and offers courses for provision of effective telehealth services. She is passionate about the integration of communication and mobility for children with disabilities.

C4: Access & Independence for Everyone – Enabling independence through power wheelchairs and alternative controls.

Mr Scott Staunton
Sunrise Medical, Wetherill Park, Australia, Rehabilitation Engineer / Clinical Hub Team at Sunrise Medical

Learning objectives

- Assessment for suitability of alternative controls
- Raise awarenesss in regards to options available for alternative controls
- Raise awareness with regards to modifications possible for powerchairs to enable independence

Abstract

Realising the potential of clients with reduced motor function can result in improved independence and ability to integrate with their environment. Through the provision of powered wheelchairs, alternative drive controls and made to order modifications these limiting factors can be reduced to helping maximise function and independence.

The challenge and goal for therapists when evaluating for appropriate alternative drive controls is knowing what technology is available to enable maximum independence where limiting factors are present and independence where it was thought there were none or limitations were present prior to assessment.

The session will take on a holistic approach to the assessment of alternative drive controls for powered wheelchairs and highlight the importance of the seating, mobility and driving assessment impact on the assessment of specialty controls. Demonstrating the need for special modifications such as powered swing away chin controls and foot operated control systems as an example to help enable independence will also help provide clarity on options that it was thought may have not been available prior to the assessment process.

By the end of the session, each participant will have a good understanding of the assessment process for powered wheelchair controls systems. Be able to establish various options available in regards to alternative control devices and maximise the potential movements of their clients through systems such as:

- Proportional Head control
- Chin Control Systems
- Switched Systems
- Sip and Puff Systems
- Head Array Systems

Assessment techniques will also be discussed in regards to driving competencies allowing participants to apply what has be learned during the session to help achieve the outcomes and goals of their clients. This session will ensure equipment issued can meet the goals of clients: promoting function, independence and integration into the community, ensuring equipment is fit for purpose.

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Presenter biography

Scott Staunton - From the UK and with experience in Prosthetics prior to training with the NHS as a Rehabilitation Engineer in 2003 Scott brings with him 18 years of knowledge and experience in the management of various client populations with relation to the provision of appropriate seating, mobility and pressure reducing equipment. In 2008, Scott moved to Australia and has worked with various equipment suppliers helping to support clients, carers and therapists to help provide a holistic approach to the provision of assistive technology.

Now with the Clinical hub team at Sunrise Medical Scott brings with him a passion for the assessment and management of clients with complex seating and mobility needs, ensuring equipment issued has a positive outcome in relation to the needs of his clients.

E3: Mobile shower commode chairs for people with larger bodies.

Emma L. Friesen, PhD

Learning objectives

By the end of this workshop, participants will be able to:

1. Describe at least five steps and tasks associated with going to the toilet
2. Discuss the four seating goals for toileting when an individual uses a mobile shower commode chair
3. Describe Dionne's five bariatric body types;
4. Discuss three posture and positioning challenges for seating people with larger bodies.

Abstract

Toileting, intimate hygiene, and bathing / showering are essential activities of daily living. These activities may involve many tasks, including undressing and dressing, getting onto and off the toilet (perhaps using assistive technology such as mobile shower commode chairs), positioning and repositioning, opening and managing bowel movements, passing urine, maintaining personal hygiene, and managing menstruation. People with larger bodies may experience unique challenges in undertaking these ADLs. They may require Assistive Technology (AT) with higher weight capacity and size, greater circulation spaces in the physical environment, and additional support surfaces for sitting, lying, and leaning.

People with larger bodies may also require assistance from those in their circle of support, through paid or unpaid caregiving. Caregivers also experience challenges in relation to safely moving and handling people with larger bodies during ADLs.

This workshop introduces participants to toileting, intimate hygiene, and bathing / showering where a person requires mobile shower commode chair.

This workshop will apply the Policy, Human, Activity, Assistance and Technology, and Environment (PHAATE) model to the design and use of AT for toileting and showering, with a specific focus on the needs of people with larger bodies. The PHAATE model provides an easy-to-follow framework for assessing a person's requirements for assistive technologies.

Using the PHAATE model, we'll explore factors influencing design, assessment, selection, and set up of AT, and particularly mobile shower commode chairs. We'll discuss issues with the environment, such as access to the toilet room itself and use of bidets and smart toilets. Finally, we'll consider the impact of Policy on all aspects of provision, including availability of products, access to needed services, and access to funding. The workshop will draw on evidence from recent research in New Zealand and Australian research, and include time for questions and discussion with participants.

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Presenter biography

Emma L. Friesen, PhD, CPEng(Biomed), B Eng (MfgSys)(Hons), BBus(Mktg), MProfEdTrain.
Emma Friesen is a Rehabilitation Engineer with experience in wheeled mobility and seating. Emma's PhD research, completed in 2016, focused on usability of mobile shower commode chairs. Emma teaches on the design, specification, and set up of mobile shower commode chairs to service providers and end users worldwide.

A6: The Art and Science of community Mat Evaluations. Toolbox tips to overcome identified barriers.

Amy Bjornson
Sunrise Medical, Sydney, Australia
Clinical Educator

Learning objectives

1. Importance of the Mat Eval; when and why;
2. Understand body planes and ranges of movement to identify reducible vs. non-reducible deformities; and
3. 5 tips to overcome barriers in conducting a MAT assessment independently.

Abstract

Of those therapists surveyed on Australia's east coast, only 28% of respondents reported always completing a Mat Eval (biomechanical assessment) prior to prescribing a seating system. Completion of a MAT assessment assists in the identification of postural abnormalities. This contributes to a wider picture of prescribing the correct supports needed for optimal and functional seating. So why don't we have this as standard practice and execute a systematic approach to seating assessments?

Several barriers to completing a Mat Eval were identified by Therapists when working in both metro and regional community settings;

- lack of mat / plinth,
- need of a second person,
- reduced confidence in locating landmarks / manual handling,
- working with a client who has increased tone, and
- working with a bariatric client.

The assessment usually involves postural assessment of the person in their existing seating system, in supine, and sitting on a firm surface. However, how can this be best managed when practicing on our own? Or not in a clinic setting with equipment? How can we locate body landmarks on a client with significant tone or significant adipose tissue? Whilst no single outcome measure captures all necessary information, a Mat Eval will reveal postural tendencies, postural capacity and provide insight into essential postural supports needed for sitting. This informed decision-making process when prescribing a wheelchair reduces the risk of pressure injuries, increased postural deformities, incorrect prescriptions and associated funding issues. All of which can negatively impact on an individual's quality of life.

In this workshop, participants will learn hands-on techniques and skills to independently assess clients in their current environment, use technology to record data from the assessment and how to interpret results.

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Presenter biography

Amy Bjornson trained as a Physical Therapist in the United States, Amy has over 20 years' experience working with adult and pediatric neurologic populations, with specialties in the treatment of spinal cord injury, and provision of assistive technology for clients with physical challenges.

Based in Sydney, Amy currently develops and implements national and international training programs on using Assistive Technology to enhance inclusion, health and well-being in those with physical disabilities. She also serves a product improvement and development role for Sunrise Medical, Australia.

Amy is a dynamic speaker who has lectured extensively on seating and mobility. She has also traveled to several developing countries, learning and sharing information with their medical communities.

Amy received her ATP certification in 1995, SMS certification in 2015 and Australian Physiotherapy certification in 2018. She is an active member of Wheelchairs for Humanity, Health Volunteers Overseas and offers technology support to Hidden Treasures Home, Fuzhou China

B6: Pressure Injuries are Ageist! Why is Ageing a major risk factor for Pressure Injury development?

Rachel Fabiniak
Permobil, Sydney, Australia,
Director Clinical Education

Learning objectives

1. Describe 5 risk factors for Pressure Injuries that can be found in the older aged population.
2. Discuss 2 ways that a pressure injury can impact the ageing individual's participation, independence and well-being.
3. List 3 common areas on the body for pressure injury development

Abstract

Pressure injuries are associated with increased pain and discomfort, decreased quality of life, along with an increase in morbidity and mortality. Pressure injuries are ageist with a tendency to target our older population and yet, they are largely preventable!

According to the 2019 International Guidelines, there are some individuals who have special pressure injury specific needs, due to their medical condition, the setting in which care is delivered and in relation to their age.

In the US, pressure injury care is estimated to cost $11.6 billion/yr. In New Zealand, the total cost of pressure injury treatment is estimated at $694 million/yr. In Australian public hospitals it has been estimated to cost $983 million/yr to treat a Healthcare Associated Pressure Injury.

What is the impact of a pressure injury to an individual? How does this pressure injury impact the person's ability to participate in daily activities, to interact with others and engage in their community? As a clinician you are part of the multidisciplinary approach and can assist as part of the team member in the identification, treatment and prevention of pressure injuries.

This presentation will refer to the 2019 International Guidelines as a basis of best practice for pressure injury prevention and treatment. We will explore the guidelines to build a foundation of understanding of pressure injuries, looking at the definitions, locations and risk factors. We will then refocus our attention to the ageing individual.

Why is the ageing individual at an even greater risk for developing pressure injuries? The factors increasing the susceptibility of pressure injury development with an ageing individual, such as the ageing skin, nutrition and weight loss will be discussed. Finally we will review the current research on pressure injuries and the impact upon the ageing individual's well-being, independence and participation.

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Presenter biography

Rachel Fabiniak began her studies at The Georgia Institute of Technology, where she graduated with her Bachelor of Science in Biology in 2009. Rachel then went on to receive her Doctorate in Physical Therapy from Emory University in 2013.

After receiving her doctorate, Rachel went into clinical practice as a physiotherapist in the Spinal Cord Injury Day Program at Shepherd Center in Atlanta, Ga. There she developed a passion for seating and mobility which ultimately led to her career with Permobil in 2018. In 2020, Rachel became Director of Clinical Education for Asia-Pacific

C6: The Wheel Story: Impact of Wheels and Tires on Manual Wheelchair Performance and Propulsion Efficiency

Curt Prewitt[1], PT, MPT Deborah Pucci[2]
[1]Ki Mobility, LLC, Stevens Point, Wisconsin, USA. [2]Ki Mobility, LLC, Stevens Point, WI, USA
MS, PT, ATP Curt Prewitt, Director of Education
PT, MPT Deborah Pucci, Clinical Educator

Learning objectives

Attendees will be able to:

1. List three features of caster wheels and explain how they influence manual wheelchair propulsion efficiency.
2. List three features of drive wheels and explain how they influence manual wheelchair propulsion efficiency
3. Explain three characteristics of drive surfaces and explain how they impact manual wheelchair drive wheel and caster selection

Abstract

Imagine a meticulously configured ultralightweight rigid manual wheelchair, set-up for the user's anatomic measurements, postural support needs, and skill level. The wheelchair has an aggressive axle position and is stripped down of secondary components, such as anti-tippers, armrests or even wheel locks. The end user is expecting a highly efficient, high-performance wheelchair. Now, imagine the chair being issued equipped with mag wheels and pneumatic tires with flat-free inserts.

Research is giving us new insights into the impact of wheel and tire selection as a critical influencer of performance. Are we considering the right factors and context when it comes to wheel and tire selection? Wheel and tire selection on manual wheelchairs often comes down to choosing the standard, no-additional-cost option, or may be based on an assumption that a user is not able or willing to maintain wheels and tires that require it. Are we providing end users an explanation of what to consider, and giving them the options to determine how much maintenance they are willing to accept?

An understanding of materials, and the physical and performance characteristics of wheels and tires, can contribute to improved decision making regarding the selection of a critical aspect of wheeled mobility: the wheeled part. This presentation will address the science of wheels and tires and review current research findings on the impact of selection and setup on wheelchair performance and propulsion efficiency. Attendees will be provided practical considerations to equip them to make appropriate wheel and tire selection when configuring manual wheelchairs.

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Presenter biography

Curt Prewitt is Director of Education for Ki Mobility. He has a BS in Exercise Physiology and an MS in Physical Therapy from the University of Colorado.

He practiced as a physical therapist in a number of settings for a few years, most prominently in long term care, where he gained experience with seating and wheeled mobility. He transitioned from a practicing therapist to a manufacturer’s representative, eventually moving into sales management and focusing on complex rehab technology. Throughout his tenure on the manufacturer’s side in the complex rehab arena, he has dealt largely with pediatric positioning and mobility products. He has previously also served as a product trainer/product specialist, teaching product features and clinical application, as well as coordinating continuing education presentations, both credited and non-credited. He has presented continuing professional education courses across the US and internationally.

D7: Made to Move - I am

The use and value of seated balance based movement technology and how moving with balance can change a life.

Marcus Thompson
OMEO, New Zealand

Learning objectives

1. To understand when to use 'seated balance based movement technology', by exploring how such a tool works in partnership with a user.
2. Develop knowledge of function, performance and outcome to clarify how to assess the suitability of the tool in relation to a broad range of users.
3. To develop an understanding of the 'value' of using 'seated balanced based movement technology' from the client and whanau perspective. To be done through the lens of the Omeo story.

Abstract

Purpose - understanding what seated balanced based mobility technology does, how to assess when it should be used and establishing value from the clients perspective.

People are made to move - it is a core human function. When mobility issues exist, the impact on life goes beyond the obvious challenges of achieving a task, our motivation and sense of self are challenged, without movement through balance our rhythm in life is altered, and in that space we establish or re-establish our identity of 'I AM'.

It is in this space where good design with smart technology gives us tools of partnership. And in this case 'seated balanced based movement technology'.

A partnership tool that affords a person to be more whole, should be used by every one - but there are parameters for safe and sustainable use with the products currently available. To establish the suitability for a client requires the assessment of learning and physical capability, fit, motivation, durability, decision making, control, character, logistical support and motivation. For a robust suitability assessment clear trials and an understanding of the functional and performance parameters of the tool / client partnership are required.

Value - the biggest part of the story - success as measured by the client using a tool regularly by choice.

Through the lens of the 10 year Omeo story and case studies explore:

Range of users
Task
Feel
Motivation to move
Mobilisation of body

Exercise
Cognitive action
Skill acquisition
Increased use of sensory system
Freedom - empowerment
Engagement - connections - family / society / self
Movement coordination rhythm
Productivity

Content references:

Presenter biography

E6: The Impact of Seating and Positioning on Respiratory System Function

Ms. Lois Brown
ILS Rehab, Adelaide, Australia
National Clinical Education Manager

Learning objectives

The participant will be able to:

1. Identify at least three rapid, easy-to-use methods to identify changes in respiratory system performance during the seating and mobility evaluation.
2. State the name of three planes of movement involved in the mechanics of breathing.
3. State at least three potential seating solutions to maximize respiratory function in the wheelchair.

Abstract

When fitting patients for a seating system, close attention is paid to posture, function and pressure distribution. However, little consideration is given to the impact that postural changes and structural supports can have on respiratory function. There is an inter-dependent relationship between respiratory function and positioning and is affected by our seating and positioning solutions. Specifically, this course will increase awareness of the cross-functional relationship between the cardiopulmonary system and postural alignment without compromising breathing mechanics. The mechanics of breathing are directly impacted by skeletal alignment of the spinal column and rib cage and the freedom of movement of the diaphragm. This is most directly impacted by the lack of postural control and at times attempts to "over-correct" postural asymmetry with primary and secondary seating supports. This presentation will focus on objective respiratory measures that can be used during wheelchair assessments to determine the effect the seating and positioning intervention has on the patient. The effects of the diagnosis on respiratory function, seating systems and angles of positioning will be discussed. Evidence based research such as studies from Mary Massery, PT, PhD confirm the need to create client solutions that "generate, regulate and maintain trunk pressures for optimal respiratory mechanics and postural alignment." [1] Other research will be shared that support this approach. In addition, the effects of the diagnosis on respiratory function, seating systems and angles of positioning will be discussed.

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Presenter biography

Lois Brown, MPT (US), RESNA ATP/SMS is a seating and Mobility Consultant in Australia and currently the National Clinical Education Manager at ILS in Australia. Lois has 29 years of experience as a physical therapist, consultant and prescriber of AT, manager of funding review for a national US supplier, and manager of clinical education for a global wheelchair supplier and manufacturer. Lois has presented Nationally and Internationally on Seating and Mobility and Assistive Technology, at ISS, ESS, OSS, CSMC, and RESNA for many years. Lois has been published in many Rehab Publications and is considered an expert in her field.

A10: Where is the Pelvis? Where is the Head? An advanced look at postural support.

Jean Minkel
Senior Vice President for Rehab and Mobility Services
Independence Care System, Brooklyn, NY, USA

Learning objectives

By attending this workshop participants will be able to:

1. Define at least 3 different positions of the pelvis that a person may assume while sitting up against gravity.
2. Relate the position of the pelvis to the most common resulting spine/trunk position
3. Identify the position of the head, depending on the position of the pelvis and the trunk

Abstract

The workshop will move from the findings of a mat / supine assessment to using those findings to determine a person's personal posture in the seated position. There will be an emphasis on the effect of gravity when a person sits up and gravity pushes down. We will explore how postural supports can be positioned to provide external support and improve head control. Finally, different pelvic positions will be presented to demonstrate the impact of pelvic positioning on the management of interface pressure while sitting.

Content references:

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Presenter biography

Ms. Minkel is a physical therapist and master clinician well recognized for her work in Assistive Technology. She is currently the Senior Vice President for Rehab and Mobility Services for ICS - Independence Care System, a not for profit, care management agency for persons living with a physical disability in New York City. Jean is also an independent consultant who provides educational and consulting service to all members of the A.T. team.

Jean has been an invited keynote speaker at conferences in the US, Canada, Australia, New Zealand and Japan. She is a published author, including many peer reviewed journal articles and most recently, she co-edited, with Michelle Lange, the newly published textbook, Seating and Wheeled Mobility – a

Clinical Resource Guide. The A.T. community has recognized Jean for her contributions by awarding to her, the RESNA Fellow award in 1995 and the Sam McFarland Mentor Award in 2012.

C10: Kick the Tires! Evaluating Wheeled Mobility Devices for Performance & Safety

Ms. Kendra Betz
University of Pittsburgh, Denver, USA
Physical Therapist

Learning objectives

Upon completion of the session, participants will be able to:

1. Review three critical considerations for evaluating new and emerging wheeled mobility devices
2. Discuss two reasons that objective results from standardized test protocols provide meaningful information about mobility device performance.
3. Describe three common wheeled mobility device failure modes that result in challenges for wheelchair users.

Abstract

Mobility technologies that support increased mobility and participation for individuals with physical impairment are consistently developed and introduced to the rehabilitation community. Product innovations capture a wide realm of proposed mobility solutions, ranging from unique ambulation assistive devices to highly customizable wheeled mobility options and rapidly evolving powered exoskeletons that support individuals who are paralyzed to stand and walk. Within each mobility device category, extensive variability exists. As just one example, manual wheelchairs are available with a multitude of frame designs and features, are built with diverse materials, and are highly customizable by configuration, individualized selection of options and accessories, and interface with complementary mobility enhancing products such as power add-on systems. Often, limited objective evidence is available about the appropriate use and effectiveness of a new mobility device, yet rehabilitation professionals must respond to consumers who believe it is a "must have," to product representatives who promote it as the "greatest invention ever" and to funding sources who insist it is an "unnecessary expense". Many people are challenged to strategically analyze mobility products to differentiate between beneficial attributes and limits of use based on the information available.

The aim of this session is to empower participants to evaluate existing, new, and emerging mobility technologies to support an accurate and meaningful assessment of potential value and identified limitations. Topics will include regulatory requirements, established international test standards, impact of published literature, ethical considerations, objective and hands-on review of device performance, durability, and safety. Strategies to identify specific clinical indications and contraindications for various mobility options will be discussed and the impact of mobility device failure on consumers will be explored. Participants will develop a framework for objectively evaluating devices to support practical clinical recommendations to support clients with unique mobility needs.

Content references:

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Presenter biography

Kendra Betz is a Physical Therapist and RESNA Assistive Technology Professional who is speaking at OSS as adjunct faculty for the University of Pittsburgh. She has also worked for the Veterans Health Administration in the USA since 1993. Kendra's areas of clinical specialization include SCI rehabilitation, assistive technology, adaptive sports, and patient safety. Kendra teaches regularly at national and international forums, leads national projects for medical device evaluation and has developed innovative programs to provide specialized support for adaptive athletes. Her expertise is recognized in the USA by induction into the National SCI Association Hall of Fame, the Air Force Association's Employee of the Year Award, and the Clinical Excellence and Distinguished Lecture Awards from the Academy of SCI Professionals.

D11: The pediatric powered wheelchair standing device: a historical perspective

Dr. Lisa K. Kenyon[1], Dr. Bonita Sawatzky[2]
[1]Grand Valley State University, Grand Rapids, USA. [2]University of British Columbia, Vancouver, Canada
Dr. Lisa K. Kenyon, Professor

Learning objectives

At the completion of the session, attendees will be able to:

1. Explain 3 ways in which powered wheelchair standing devices have evolved over the past 40 years.
2. List 3 potential factors that have affected of powered wheelchair standing device development for children
3. Discuss 3 societal changes that have enhanced our ability to provide powered wheelchair standing devices to children
4. Compare and contrast various pediatric PWSDs from around the world

Abstract

Idioms such as 'stand up for yourself', 'as sure as I am standing here', and 'stand your ground' reinforce standing as a societal norm symbolizing independence, dignity, and autonomy. For children who use a powered wheelchair, a powered wheelchair standing device (PWSD) may offer more than just opportunities for lower extremity weight bearing. This session will explore pediatric PWSDs through the lens of a historical perspective. We'll start in the 1970s with the development of the first standing wheelchair devices/PWSDs for adults and examine the evidence-based value and benefits of these early devices. We will then shift our focus to the evolution of pediatric PWSDs and track changes in pediatric PWSDs to society's changing values and beliefs over time regarding adults and children with disabilities. We'll then explore potential factors influencing pediatric PWSD design and use. Finally, we will compare and contrast various pediatric PWSDs from around the world.

Content references:

1) Townsend EL, Bibeau C, Holmes TM. Supported standing in boys with Duchenne muscular dystrophy. *Pediatr Phys Ther*. 2016;28(3):320-329.
2) Tally MK, Pope EM. We're still standing. *Rehab Manag*. 2020:33:6-9.
3) Vorster N, Evans K, Murphy N, KavaM, et al. Powered standing wheelchairs promote independence, health and community involvement in adolescents with Duchenne muscular dystrophy. *Neuromuscul Disord*. 2019; 29(3):221-230.
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Presenter biography

Lisa Kenyon is a Professor in the Department of Physical Therapy at Grand Valley State University in Grand Rapids, Michigan. Dr. Kenyon heads the Grand Valley Power Mobility Project, an inter-professional research and service project that provides power mobility training for infants, toddlers, children and young adults who are not typically considered to be candidates for power mobility use. Dr. Kenyon presents nationally and internationally on topics related to pediatric physical therapist practice and has published multiple peer-reviewed journal articles and book chapters pertaining to power mobility and pediatric topics. Dr. Kenyon currently serves on the Editorial Committee for the Wheelchair Skills Program (Dalhousie University, Halifax, Nova Scotia, Canada) and on the Pediatric Specialty Council of the American Board of Physical Therapy Specialties.

Bonita Sawatzky is an Associate Professor in the Department of Orthopaedics at the University of British Columbia. Dr. Sawatzky has worked extensively with people with spinal cord injury, including traumatic and non-traumatic populations, as well as adults and children. The focus of her research has been to find ways to make mobility easier and more efficient for those with spinal cord injuries with over 80 peer reviewed publications. She aims to develop a better understanding of the biomechanics of mobility and identifying ways to educate individuals on how to walk or wheel more effectively. In addition, Dr. Sawatzky has begun to explore more specifically issues related with ageing such as technologies and training for older populations, as well as understand functional changes with ageing of individuals with rare neuro/orthopaedic conditions. She worked with the Vancouver ISS committee for 18 years and now enjoying working with the OSS organizing committee!

E9: A Pilot Study Comparing Postural and Functional Skills in Supportive vs. Unsupportive Wheelchair Backs

Dr. Jessica Pedersen[1,2], Dr. Cynthia Smith[3]
[1]Shirley Ryan AbilityLab, Chicago, USA. [2]Devices 4 the Disabled, Chicago, USA. [3]Private Practice, Denver, USA
Dr. Jessica Pedersen, Clinical Director/Research Assistant
Dr. Cynthia Smith, owner

Learning objectives

1. Identify two outcome measures for determining the benefits of a back support
2. Describe a method for measuring a a kyphosis when sitting in a wheelchair
3. Identify evidence demonstrating differences in forward upward reach when using two different backs

Abstract

Does a back support make a difference for people with a C6-T4 SCI? The intervention of back supports for people with spinal cord injury began in the 1980s. Since that time, many products were introduced to provide posterior support at the pelvic and sacral area in an effort to neutralize pelvic tilt and promote a more upright spine. Does a back support, placed in an optimal position to prevent a posterior pelvic tilt, make a significant difference compared to no back support? What outcomes make a statistical significance? This study looked at the ability to maintain spinal alignment, spirometry outcomes, reach, pain, and wheelchair skills with a person using a K5 wheelchair with and without a back support. This presentation will demonstrate how a clinician can practically gather evidence in the clinic to demonstrate any physical or functional changes with a back support intervention. This data can help in clinical decision making as well as provide data to support reimbursement to third party payers questioning the expense. Participants will learn the process for incorporating research into a clinical setting including determining the research question, developing a PICO, determining appropriate outcome measures, collecting and analyzing the data. The measures will be demonstrated, illustrating how they can be incorporated during a a clinical session. Outcomes will be outlined with analysis determining significance to show how a supportive back can enhance function versus a back that does not support the pelvis and spine into a neutral position.

Content references:

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Presenter biography

Jessica and Cindy have over 80 years of experience combined. Each worked in a large rehab center in the United States, Shirley Ryan Abilitylab and Craig Rehabilitation Hospital. They have had the opportunity to provide clinical wheelchair and seating service delivery, manage a wheelchair and seating clinic, teach and mentor students and young therapist, advocate for legislative and policy change, and conduct research. They have shared their passion for wheelchairs and seating around the world. They are excited to join together to share these findings.

A11: C1 South Gold Sponsor's session

Facing Forward – What's Up with Head and Neck Supports

Stephanie Tanguay OT/L, ATP

Abstract

Many consumers who utilise wheeled mobility require a head support as part of their seating system. A headrest may be utilised as a support for periods of rest or in alternative positions such as tilted or reclined. It can also be an integral part of a power wheelchair with aspects of the drive controls embedded in or attached to the head support. This session will review the geometry of the human skull and its' range of movement and the influence of seated posture on head orientation. The impact of these factors on head support will be presented along with an overview of various products.

Presenter biography

Stephanie Tanguay worked as an occupational therapist for 13 years, with a focus on spinal cord injury, seating, and mobility. She also worked as a rehabilitation technology supplier for seven years. She has presented on numerous occasions at the International Seating Symposium, RESNA, the Canadian Seating & Mobility Conference, and the European Seating Symposium. Stephanie has been the clinical education specialist for Motion Concepts since 2006. Stephanie is a native Detroiter and a devoted hockey fan (let's Go Red Wings). She has a vast knowledge & experience of seating and wheeled mobility, when she is not teaching, she is most likely to be found beach combing or visiting a National Park.

D12: Complex Wheelchair Seating and Positioning: The Postural Assessment Process!

Joana Santiago
Medifab, Sydney, Australia, Clinical Education

Learning objectives

Upon completion of this session, participants will be able to:

1. List three essential steps when performing a MAT assessment.
2. Identify at least two common postural deviations observed in each plane of motion
3. Describe the appropriate steps in assessing available hip and knee flexion for a seated position.
4. Describe where postural support is required in a wheelchair seating system based on the MAT assessment findings.

Abstract

Prescribing complex wheelchair seating can be dauting. There are thousands of different solutions to choose from! How can we determine what is the best for our clients, particularly the ones with challenging postural needs? How can we assure the prescribed solution will achieve successful outcomes? Well, the basis for any seating and mobility intervention should be, first and foremost, about the person and their body. We will increase the odds of choosing the right product if we, in fact, perform a comprehensive postural assessment to identify the cause of the postural deviation.

During this interactive session, Joana will facilitate the learning process by breaking down the Assessment Process in small steps, and together with Hammie®, will demonstrate the impact that client's range of motion, joint flexibility, muscle length and skeletal presentation observed on the plinth have on wheelchair seating angles and postural support requirements.

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Presenter biography

Joana Santiago is the Clinical Educator Manager and the R&D Clinical Lead for Medifab. She completed her degree in Occupational Therapy in Portugal and soon developed a passion for Posture Care and Wheelchair Seating & Positioning. With 15 years of experience, predominantly dealing with clients with complex postural needs, Joana takes pride in her flexible capability in reaching good clinical outcomes by considering the individual needs, wants and expectations of those she works with. Joana is based in Australia where she primarily assists clinicians by sharing her knowledge and expertise through education and mentoring programs. Furthermore, she has a positive influence on the development, supply, and training of Medifab's extensive range of products.

She is a specialist in her field and has presented at a variety of national and international conferences around the World.

D13: Time for a Switch: The Evaluation of Non-Proportional Drive Controls

Mr John "Jay" Doherty
Pride Mobility Products Corporation, Exeter, PA, USA
Director Clinical Education

Learning objectives

1. Participants will apply the hierarchy of drive controls to the selection of non-proportional drive control selection.
2. Participants will explain 2 programming features available for non-proportional drive controls that can increase independence and maximize function.
3. The Participant will discuss 2 options for controlling power seat functions when utilizing non-proportional input devices.

Abstract

There are many considerations to make when assessing an individual for power mobility use. The decisions made will impact not only the individual's mobility, but also how they reposition themselves, interact socially, and access their environment. There are many options for non-proportional drive controls on the market today, so how does the therapist and supplier choose the correct device when a proportional device is not an option? This course will review the hierarchal decision tree to allow the participant to understand how to decide which non-proportional input device is best for the individual they are working with. The course will use videos and case studies to assist in showing actual devices being utilized.

Content references:

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Presenter biography

Jay Doherty has 26 years of experience working in the assistive technology field with a concentration in complex rehab technology. As the director of clinical education at Quantum Rehab, Jay presents

nationally and internationally on seating and wheeled mobility, focusing on evaluation and application of available technologies.

Before joining Quantum, Jay worked in both rehabilitation and assistive technology settings. His expertise ranges from pediatrics to adults. His presentations reflect a strong emphasis on different technology interventions. Jay currently sits on the Mobility Management Editorial Board and holds his ATP and SMS certifications from RESNA.

E14: Permobil Platinum Plus Sponsor's session:

Understanding the Design of Manual Wheelchairs from an Engineer's Perspective.

Presenter Biography

Samuel Baker (B.Eng., MIEAust) is part of the Permobil APAC team in the role of Product Manager, specialising in Manual Wheelchairs and Power Assist Devices. Trained as a medical engineer with further studies in biorobotics, he started his career in the hospital and government setting before joining the assistive technology industry in 2015. Previous roles have included business development manager and product specialist where he developed a broad range of knowledge and passion for training and education.

Equally happy being hands on with products, past career highlights have included the opportunity to provide technical support for athletes at global para-sports events such as the Commonwealth and Invictus Games.

Outside of work Sam enjoys hiking, pulling things apart to figure out how they work, martial arts, and spending time with friends and family.

A13: Supporting the growth and development of wheelchair and seating therapists: a coaching approach

Mrs Maria Whitcombe-Shingler, Mrs Jo Blaiklock
ADHB, Auckland, New Zealand
Mrs Maria Whitcombe-Shingler, Educator
Mrs Jo Blaiklock, Practice Supervisor

Learning objectives

1. Have been introduced to coaching tools and techniques used to facilitate growth and development of wheelchair and seating therapists
2. Learn and apply the GROW model of coaching
3. Practical tips for effective coaching sessions.

Abstract

From novice to expert, the journey of wheelchair and seating training can be a long and challenging journey. This session will be offering participants the opportunity to learn about coaching principles, models and tips, and the lived experience of applying these. As clinicians in a field with increasing demand and funding complexities, the need to work effectively to achieve positive outcomes for our clients whilst avoiding feeling overwhelmed and frustrated was recognised.

The use of mentoring as opposed to preceptoring and the use of a coaching model in conjunction with other models of training and supervision has been effective in building skill and confidence. The learning with these approaches could be useful to other services. Supporting and valuing individual team members, understanding the client population and context, and focussing on client outcomes have led to a focus on coaching, support and empowerment. This is alongside enabling therapist participation in the New Zealand wheeled mobility and postural management competency framework training, tasks, and formal case studies.

The essential components of effective coaching using the GROW coaching model can be a powerful catalyst for change. With therapists on the ground identifying the possible solutions, success can come from listening, exploring and supporting ideas in a structured and safe framework.

Content references:

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Presenter biography

Maria Whitcombe-Shingler graduated as an occupational therapist from CIT, Upper Hutt. She has worked in a range of hospital school and community settings and has clinical, teaching and supervisory experience. She has worked at Mobility Solutions since its inception in 2000. Maria is a reflective practitioner, and completed her Masters research (Otago Polytechnic) using qualitative methodology to look at adult users' experiences and perspectives of using multifunction power wheelchairs in Aotearoa, New Zealand.

Jo Blaiklock graduated as an Occupational Therapist in 1981 when the school was at CIT in Upper Hutt. Foundation years were spent working in mental health, then in establishing a day programme for people with Alzheimer's disease. Since 2009 she has worked in the area of complex wheelchair and seating provision at Mobility Solutions (Wheelchair and Seating Assessment Service at Auckland DHB) becoming the Practice Supervisor in 2015. An early influence on this direction was her mother, who became a quadriplegic following a motor accident when Jo was 6 years old. This lived experience stirred a desire for removing barriers to participation and promoting well-being for all. Jo is also keenly involved with Building for Education, a charity that provides funding and skills to develop education and humanitarian programmes to benefit children affected by poverty, HIV/Aids and abuse in East Africa.

A14: Can user centered design be used to develop assistive technology? Testing a framework for collaboration

Miss Hana Phillips, Associate Professor Gianni Renda, Professor Rachael McDonald
Swinburne University, Melbourne, Australia
Miss Hana Phillips, Occupational Therapist

Learning objectives

1. For participants to be exposed to current design methodologies and how these may run in parallel with current practices within both healthcare and with development of assistive technologies
2. For participants to experience current design methodologies and trial a collaborative framework in a safe space
3. For participants to have an opportunity to reflect on their own practices and the proposed framework and whether they can see the benefits of further interdisciplinary practice to start conversations for further interdisciplinary opportunities and gaps in the research.

Abstract

Introduction: There is growing evidence that there is a need for change in the approach to Assistive technology (AT), to reduce the levels of abandonment in the community and improve quality of life for the users of AT. Alongside this, healthcare professionals are interacting with design professionals to solve complex issues within healthcare on an increasingly frequent basis. Examples of this include areas of oncology, hospital design and dementia care. However, there has been limited research into human centered design with the collaboration of users of AT, health care professionals and designers. As there is growing evidence that collaboration between the users of AT, as well as health care professionals and design professionals utilising a human and user centered design approach may be of benefit to the users of AT and reduce the abandonment of AT.

Method: To further engage with this topic, users of AT, healthcare professionals and designers have participated in research to understand the current understandings of human centered design and collaboration in this space of AT design and inter-professional practices. This data was then used to formulate a framework to implement user and human centered design within the field of AT. This framework was developed to address the areas of difficulty presented and to mitigate these issues. This framework will be demonstrated and run as a pilot to ensure it's suitability prior to being used within the community.

Result: After trialing of this methodology, it will be adapted and used within the community to provide a use case for the interdisciplinary collaboration of users of AT, designers and healthcare professionals. This will assist in both understanding the potential role of human centered design in the area of AT and promoting the interactions between user centered and client centered practice within the AT community.

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Presenter biography

Hana Phillips: Hana's has a background in Occupational Therapy and rehabilitation, with an interest in adults and disability. With broad experience within the public and private health sectors, her interests include adaptive technology and environmental design and modification. This lead to working on a PhD in understanding how design principles, specifically user centred design and design thinking may improve the utility of aids and improve personal independence as well as decrease long term abandonment.

Gianni Renda: Associate Professor Gianni Renda is Deputy Chair of the Department of Architectural and Industrial Design. His research focus is investigating ways that design can empower the user in the field of health, disability and ageing. Other interests include food design, advanced manufacturing, Italian design history and automotive design. Gianni has worked professionally as a graphic designer, retoucher, printer, exhibition and set designer.

Rachael McDonald: Associate Professor Rachael McDonald is a clinical, research and teaching Health Professional with an interest in enabling people with lifelong disabilities to participate in life situations. She has worked extensively in this field, with in both children's services and adult settings. She supervises research (honour's, MSc and PhD) students specialising in the care of people with complex disability as well as development and evaluation into the effectiveness of assistive technologies, and has published widely. She has qualifications in occupational therapy, biomechanics and higher education in addition to her Doctorate which was an exploration of the acceptability and effectiveness of adaptive seating systems in wheelchairs for children with cerebral palsy. She previously held a joint appointment with the Department of Occupational Therapy and the Centre for Developmental Disability Health Victoria at Monash University. Her role at CDDHV included health professional education and leading research activities, whereas her interest in using technology as an enabler but also as a tool for collecting objective evidence was a feature of her occupational therapy research. This interest has led to her recent appointment as the Chair, Department of Health and Medical Science at Swinburne University of Technology, where this research is developing further.

B11: Permobil Platinum Plus Sponsor's session

Smart Drive: New Updates and their Clinical Applications

Presenter Biography

Samuel Baker (B.Eng., MIEAust) is part of the Permobil APAC team in the role of Product Manager, specialising in Manual Wheelchairs and Power Assist Devices. Trained as a medical engineer with further studies in biorobotics, he started his career in the hospital and government setting before joining the assistive technology industry in 2015. Previous roles have included business development manager and product specialist where he developed a broad range of knowledge and passion for training and education.
Equally happy being hands on with products, past career highlights have included the opportunity to provide technical support for athletes at global para-sports events such as the Commonwealth and Invictus Games.
Outside of work Sam enjoys hiking, pulling things apart to figure out how they work, martial arts, and spending time with friends and family.

Rachel Fabiniak began her studies at The Georgia Institute of Technology, where she graduated with her Bachelor of Science in Biology in 2009. Rachel then went on to receive her Doctorate in Physical Therapy from Emory University in 2013.

After receiving her doctorate, Rachel went into clinical practice as a physiotherapist in the Spinal Cord Injury Day Program at Shepherd Center in Atlanta, Ga. There she developed a passion for seating and mobility which ultimately led to her career with Permobil in 2018. In 2020, Rachel became Director of Clinical Education for Asia-Pacific.

B12: Get me out of here, Manual Wheelchair Power add on Devices

Mr Mitchell Stone
Sunrise Medical, Sydney, Australia, Product specialist

Learning objectives

1. Have a good understanding of considerations regarding add on devices.
2. Be able to establish various options available in regards to features and considerations of each
3. Have increased confidence which may help decide which product is going to be suitable for the end user

Abstract

This highly engaging workshop will describe the diverse equipment available to manual wheelchair users to get out in the community. We'll also discover what add on devices make it possible to visit places that would otherwise be too difficult to access. The workshop will cover options that can be attached to a user's manual wheelchair, what to look out for when scripting these products and restrictions that may apply to both the wheelchair and add on devices. Benefits of the use of power add on devices will be covered as well as how it can help users interact in the community; getting them out and about without the fear of being "stuck".

Products available on the market, such as Smart Drive, Smoov, Freewheel, Front Wheel, Batec, F55, Street Jet, Claxon, Tri-Ride, Extender, I-Express, E-fix, E-motion will be reviewed including their and unique applications and benefits.

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Presenter biography

Mitch Stone joined Sunrise Medical at the start of 2021 as the RGK product specialist. He has a passion for maximising function and skills for both new and old wheelchair users. He knows the difference a

millimetre can make in a perfect set up. Mitch has been a manual wheelchair user since 2010 and brings a breadth of both practical and technical experience to his role. Prior to joining the assistive technology industry, Mitch work in the trade industry where millimetres also made a difference.

Mitch plays both basketball and wheelchair rugby league. He has represented Australia in the League competition and is striving to play on the international stage again in 2021. His skills on the court provide him with an expert insight and understanding the essential needs when scripting elite chairs for athletes.

Mitch enjoys mentoring and upskilling wheelchair users, helping them to maximise their daily function and participation both in the community and on the field.

C13: The measurement of postural asymmetry in non-ambulant adults with cerebral palsy

CHOLMES[1,2],
[1]Monash University, Peninsula Campus, Melbourne, Australia; [2]St. Vincent's Hospital Melbourne, Melbourne, Australia

Learning objectives:

Upon completion of this session participants will be able to:

1. Identify factors impacting postural asymmetry and lifespan care in non-ambulant adults with cerebral palsy
2. Understand the use of the Goldsmith Indices of Body Symmetry in the measurement of postural asymmetry of the thoracic cage, pelvis and hips
3. Understand the interpretation of GIofBS results and the significance for postural monitoring and therapeutic interventions

Abstract

Postural deformities affecting the spine, pelvis and hips are common in non-ambulant adults with cerebral palsy (CP). Despite the relatively static nature of CP, the postural asymmetries in CP are noted to be progressive affecting many domains of health and functioning.
Secondary impairments are common in the more severely affected adults with complex disabilities with the effects of ageing and functional decline occurring earlier in adults with CP than the general population..
Consistent and reliable clinical measurement of posture and the impact of interventions is challenging, with radiographic studies proving difficult for those with contractures and/or behavioural or movement disorders. The Goldsmith Indices of Body Symmetry (GIofBS) is a simple clinical measurement tool which captures quantitative objective data of rib cage shape, pelvic alignment and hip orientation providing a three-dimensional understanding of the rotary nature of these asymmetries. The GIofBS, using customised measurement apparatus, captures the segmental inter-relationships of the thoracic cage, pelvis and hips, thus providing a clinical approach to aid in problem solving complex seating and bed positioning requirements.
Issues related to the progression of postural asymmetry of the thoracic cage, pelvis and hips will be discussed using a case study to highlight the utility of the GIofBS. Objective measurement of postural asymmetry using the GIofBS will be demonstrated providing a practical overview of the process. Videos demonstrating use of the tool with a young adult with a complex disability will further enhance understanding of the measurement process inclusive of clinical interpretation of the results.

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Presenter biography

Carlee Holmes is the senior physiotherapist in the Young Adult Complex Disability Service (YACDS) at St. Vincent's Hospital Melbourne and also works in private neurological practice. The YACDS is a transition service from paediatric to adult healthcare for young adults with complex medico physical disabilities including cerebral palsy.

Carlee has a particular interest in the measurement of postural asymmetry in non-ambulant adults with cerebral palsy and is currently completing a PhD investigating "Assessment and Management of the common postural characteristics in young adults with Cerebral palsy". She has also gained additional certification in Postural Care and Measurement of Body Symmetry.

Carlee is a research associate for CP Achieve and involved in the consumer working group. She is also a member of the American Academy for Cerebral Palsy and Developmental Medicine Lifespan Care Committee

C14: Night- time positioning: Systematic approach to successful outcomes.

Joana Santiago
Medifab, Sydney, Australia
Clinical Education

Learning objectives

Upon completion of this session, participants will be able to:

1. Identify three physiological side effects of immobility common in people with disabilities
2. Identify three potential issues that can be addressed by supported lying positions at night
3. Describe three potential benefits of promoting supported supine lying in clients with complex needs
4. List three potential risks factors that need to be addressed for successful and safe outcomes

Abstract

People of all ages, who have a motor impairment or movement disorder, are at higher risk of developing postural deformities. Prolonged postures can be dangerous for any individual, however, for those who find it hard to change position, these may result in contractures and ultimately in structural deformities with life threatening consequences.

An intermediate level workshop analysing the negative effects that unsupported lying can have on clients with movement disorders. Evidence-based research suggests that preferred postures adopted in lying are greatly associated with postural deformities observed in sitting. Based on that, we will support clinicians with a systematic assessment process and will provide practical strategies for a successful intervention and implementation plan.

This is a great opportunity for everyone who wants to enhance their confidence and clinical reasoning skills in determining the optimal posture and functional requirements for their clients based on a 24-hour posture care management approach.

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Presenter biography

Joana Santiago is the Clinical Educator Manager and the R&D Clinical Lead for Medifab. She completed her degree in Occupational Therapy in Portugal and soon developed a passion for Posture Care and Wheelchair Seating & Positioning. With 15 years of experience, predominantly dealing with clients with complex postural needs, Joana takes pride in her flexible capability in reaching good clinical outcomes by considering the individual needs, wants and expectations of those she works with. Joana is based in Australia where she primarily assists clinicians by sharing her knowledge and expertise through education and mentoring programs. Furthermore, she has a positive influence on the development, supply, and training of Medifab's extensive range of products.

She is a specialist in her field and has presented at a variety of national and international conferences around the World.

D16: Permobil Platinum Plus Sponsor's Session:

Introducing the New ROHO Hybrid Select

Terri Davies,
Product Manager – APAC, Permobil, New Zealand
Rachel Maher
Clinical Educator, Permobil, New Zealand

Presenter Biography

Terri Davies graduated from Brigham Young University in 2013 with a Bachelor of Science in Public Health having previously received her Associate of Science in Physical Therapy Assistant in 2010. Terri is currently completing her Master's in Applied Management.
Terri found her passion for Neuro while working in a non-profit Neuro clinic for three years and spent a year as a travelling therapist in the USA where she fell in love with wounds and realised her passion for pressure injury prevention.
Terri has worked for Permobil for 5 years in numerous roles including leading the New Zealand Rental Division as National Rental Services Manager and more recently National Business Development Manager. Terri started as Product Manager for APAC in January 2022.

Rachel Maher graduated from the University of Otago in 2003 with a Batchelor of Physiotherapy, and later gained her Post Graduate Diploma in Physiotherapy (Neurorehabilitation) in 2010.

After graduating, Rachel gained experience in inpatient rehabilitation and community Physiotherapy, before moving into a Child Development Service, working with children aged 0 to 16 years.

Rachel developed a passion for seating and mobility while working children, recognising the value of a team approach to wheelchair and seating provision to achieve the best outcomes for end users.

Rachel later moved into a Wheelchair and Seating Outreach Advisor role at Enable New Zealand in 2014, complementing her clinical knowledge with experience in NZ Ministry of Health funding processes.

Rachel joined Permobil in June 2020 and is passionate about education and working collaboratively to achieve the best result for our end users.

E17: Listening to their voices: Children's and families' perspectives of power mobility use

Dr. Lisa K. Kenyon
Grand Valley State University, Grand Rapids, USA
Professor

Learning objectives

At the completion of this educational session, attendees will be able to:

1. Discuss 3 ways in which children's perspectives of power mobility intervention could be incorporated into a pediatric power mobility intervention plan.
2. Discuss 3 ways in which parent's/caregivers' perspectives of power mobility use may evolve over time.
3. Compare and contrast 3 factors influencing procurement and use of power mobility devices.
4. Explain 3 ways in which these children's and families' perspectives can be applied to enhance our daily practice.

Abstract

Power mobility use can have a life-changing impact on children and their families. The influence of power mobility use on children's play skills, psychosocial skills, and interpersonal/peer relationships is well documented in the literature. Children's use of power mobility also has been found to positively impact the attitudes of others towards children with disabilities, and in some cases, changes how other people view the abilities of children with mobility limitations. Despite these documented benefits, understanding children's and families' perspectives of power mobility use may provide additional insights into how these user groups see, judge, and perceive power mobility devices. This session will involve listening to the voices of >75 children and parents/caregivers (20+ children and 55+ parents/caregivers) as they describe their experiences, concerns, joys, and sorrows related to children's power mobility use. Voices will include children who use a powered wheelchair and their parents/caregivers, children who use a powered wheelchair standing device and their parents/caregivers, and parents/caregivers of children who are exploratory or operational power mobility learners who are unable to speak for themselves. Through these voices, we will explore user perspectives and experiences on power mobility device use, power mobility intervention methods, factors influencing procurement of power mobility devices, and personal/environmental factors influencing everyday power mobility device use. These perspectives and experiences will be further examined within the context of existing research findings to consider interconnections amongst self, family, technology, and other people across time and place. Finally, we will reflect on how the perspectives of these children and families can be applied to enhance our daily practice.

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Presenter biography

Lisa Kenyon is a Professor in the Department of Physical Therapy at Grand Valley State University in Grand Rapids, Michigan. Dr. Kenyon heads the Grand Valley Power Mobility Project, an inter-professional research and service project that provides power mobility training for infants, toddlers, children and young adults who are not typically considered to be candidates for power mobility use. Dr. Kenyon presents nationally and internationally on topics related to pediatric physical therapist practice and has published multiple peer-reviewed journal articles and book chapters pertaining to power mobility and pediatric topics. Dr. Kenyon currently serves on the Editorial Committee for the Wheelchair Skills Program (Dalhousie University, Halifax, Nova Scotia, Canada) and on the Pediatric Specialty Council of the American Board of Physical Therapy Specialties.

E18: Considerations for Determining Optimal Manual Wheelchair Configuration – what are the "non-negotiables"?

Deb Wilson[1], Sandie Grant[2]
[1]Geneva Healthcare -Seating To Go, Hamilton, New Zealand. [2]Geneva Healthcare - Seating To Go, Tauranga, New Zealand
Deb Wilson, Training Lead
Sandie Grant, Senior Wheelchair & Seating Therapist

Beginner - Intermediate

Learning objectives

Upon completion of this session, participants will be able to:

1. Describe 3 key considerations when configuring a manual wheelchair for an active user
2. Identify 3 "non – negotiable" factors that will determine optimal manual wheelchair set up for the individual
3. Describe 3 adjustments on manual wheelchairs that impact propulsion, transfers and functional stability.

Abstract

Manual wheelchair design continues to improve as we understand more about the impact of configuration on propulsion efficiency, posture and stability, injury prevention, activity and function. The diverse community of people living with disabilities, and the essence of what an everyday life means for them in their communities, adds to the unique prescription considerations when assessing for a manual wheelchair. There is no formula, and for those who are beginning their journey into the wheeled mobility and seating community, the adjustable capabilities and options available on configurable manual wheelchairs can be overwhelming.

This session will start by introducing key concepts such as centre of gravity, rolling resistance, yaw axis control, propulsion efficiency and upper limb/shoulder preservation. We will discuss "non-negotiable" factors e.g. transfer technique, decreased ROM, that will inform the starting point from which individual wheelchair configuration will evolve.

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Presenter biography

Deb Wilson is an Occupational Therapist with over 30 years clinical experience. She is the Training Lead of Seating To Go, part of the Geneva Healthcare Group and a leading wheelchair and seating assessment, training and repair service in New Zealand.

In 2009, she helped develop the NZ Ministry of Health wheeled mobility and postural management credential for occupational therapists and physiotherapists. She is the NZ Chair for OSS and has contributed to capacity building in the Pacific Islands with Motivation Australia. Deb is currently a member of the ISWP Wheelchair Educators Package Development Group.

Sandie Grant is a Senior Wheelchair & Seating Therapist and training facilitator at Seating To Go, part of the Geneva Healthcare Group, New Zealand. Sandie started working for STG in 2000 and has developed a passion for sharing her knowledge and experience of wheelchair and seating within the organisation and as part of the training team.
Sandie started her Occupational Therapy career as a new graduate working in USA in 1992. With a solid grounding working in a large rehabilitation hospital, she then went on to work in a hand clinic, neonatal unit and finally moving back to NZ where she worked as a community OT before joining the STG team 2000. Sandie takes pride in her flexible capability in reaching good clinical outcomes and is passionate about education and working collaboratively to achieve the best result for our end users.
In her spare time she enjoys spending time with her husband and three kids camping, tramping and adventure racing.

A16: Using power mobility as a therapeutic intervention to support development and learning across the lifespan

Dr Lisbeth Nilsson[1], Dr Lisa Kenyon[2]
[1]Associated to Health Science Centre, Lund University, Lund, Sweden. [2]Grand Valley State University, Grand Rapids, Michigan, USA
Dr Lisbeth Nilsson, researcher and occupational therapist
Dr Lisa Kenyon, Professor

Learning objectives

1. Explain the value of the ALP in supporting power mobility interventions for infants and people with severe or profound cognitive impairments.
2. Discuss the value of using power mobility as a therapeutic intervention to facilitate development and tool use learning in infants and people with severe or profound cognitive impairments.
3. Connect early phases in the learning process to three specific sensorimotor/cognitive achievements attained through power mobility practice in infants and people with severe or profound cognitive impairments.

Abstract

Four decades have passed since powered mobility studies first documented the developmental and functional benefits of self-generated mobility for children with disabilities. But why are power mobility interventions still so rarely used with the youngest children, and almost entirely absent for people of all ages who have severe or profound cognitive impairments?

Infants and people with severe or profound cognitive impairments are typically unable to voice their needs or desires. Advocating is therefore a task that falls to stakeholders such as parents, relatives, therapists, and care staff who serve as their vicarious voices. Familiarity with an individual's needs and desires, and knowledge of the developmental and learning opportunities provided by powered mobility intervention, are prerequisites for effectively becoming this vicarious voice. To advocate effectively, the stakeholders themselves must be confident that the intervention will provide valuable and beneficial achievements.

Insights from research on infant development and tool use learning help to explain the importance of self-generated mobility for these individuals. We will highlight the developmental achievements and tool use learning that may be gained through therapeutic power mobility intervention with infants and people with severe or profound cognitive disabilities. Showcasing and detailing these valuable achievements that are inter-related and built on each other, may inspire and motivate stakeholders to advocate for therapeutic power mobility interventions for these vulnerable populations in need of unique approaches.

In addition, being able to recognize, track, interpret, and facilitate minor changes and achievements associated with becoming a power mobility tool user are important in cultivating stakeholders' motivation and persistence to engage in the intervention. The Assessment of Learning Powered mobility use (ALP) can be used to assess and facilitate necessary achievements, thereby supporting stakeholders' motivation to persist with practice over the prolonged periods of time needed to achieve desired outcomes in these focused populations.

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Presenter biography

Lisbeth Nilsson is a PhD and specialist in occupational therapy and associated researcher of Occupational Therapy and Occupational Science Group in Lund University, Sweden. She became an occupational therapist in 1974, earned a Master degree in 1996 and a Doctoral degree in 2007. She developed the intervention Driving to Learn in powered wheelchair for people with cognitive disabilities (1993-2007). Her special interests are tool use learning and assessment and facilitation of the learning process. She and her collaborator Durkin, PhD, UK, developed the Assessment of Learning Powered mobility use (ALP) (2009-2013). One of her current interests is what drives human development, learning and creates meaning-making in activity and participation.

Dr. Kenyon is a Professor in the Department of Physical Therapy at Grand Valley State University in Grand Rapids, Michigan. Dr. Kenyon heads the Grand Valley Power Mobility Project, an inter-professional research and service project that provides power mobility training for infants, toddlers, children and young adults who are not typically considered to be candidates for power mobility use. Dr. Kenyon presents nationally and internationally on topics related to pediatric physical therapist practice and has published multiple peer-reviewed journal articles and book chapters pertaining to power mobility and pediatric topics. Dr. Kenyon currently serves on the Editorial Committee for the Wheelchair Skills Program (Dalhousie University, Halifax, Nova Scotia, Canada) and on the Pediatric Specialty Council of the American Board of Physical Therapy Specialties.

B15: Wheelchair Educators' Package: a tool to enhance wheelchair education globally

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Mary Goldberg, mgoldberg@pitt.edu, United States, University of Pittsburgh
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Rosie Gowran, rosie.gowran@ul.ie, Ireland, University of Limerick

Keywords: wheelchair service provision, healthcare personnel, education, global, training

Presentation type: 90 minutes instructional session/workshop.
Presentation level: Beginner - Intermediate

Learning objectives

By the end of this workshop participants will be able to:

- describe the Wheelchair Educators' Package purpose and content;
- identify how the Wheelchair Educators' Package may be used to enhance the wheelchair education provided within their training programs; and
- to describe how at least 1 component of the Wheelchair Educators' Package may be useful for integrating or modifying wheelchair education in their context.

Abstract

It is estimated that 75 million people with disabilities around the world need wheelchairs in order to fulfill all human rights (WHO, 2018). Providing wheelchairs, and other assistive technology, can increase health and wellbeing of individuals and reduce social exclusion. It can also have important economic benefits for a person and a community (ATScale, 2020). Unfortunately, only between 5-15% of those in need of a wheelchair can access one (WHO, 2018). This increases inequity and limits the ability for countries to meet their obligations under the United Nations Convention on the Rights of Persons with Disabilities.

An increasingly recognized barrier to access appropriate wheelchairs is the lack of trained wheelchair personnel (Fung, 2017). Not all educational institutions teach wheelchair content, and there is great variability in what and how it is taught and evaluated. To support the integration of wheelchair content into universities and regional training centers globally, the Wheelchair Educators' Package has been developed by a diverse group of 30 people, with representation from different professions and economic settings, including technical experts, end-users, experts in assessing evidence and stakeholders. This package will enable programs to strengthen rehabilitation systems worldwide, through appropriately trained professionals in wheelchair service provision.

In this workshop, we will describe the participatory action research approach used to develop the Wheelchair Educators' Package and an overview of the content. Participants will have the opportunity to engage in simulated use of the Package in order to explore how it may be used to address training needs of wheelchair service providers in their contexts. Facilitated discussion will enable participants to provide

feedback on how the Package could be improved to meet the education needs within their contexts. Post-conference, all participants will be notified of the Wheelchair Educators' Package launch.

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Presenter biographies

Paula Rushton is an Associate Professor in the School of Rehabilitation, Occupational Therapy Program at the University of Montréal and a researcher at the CHU Ste-Justine Research Center. Her research is focused on measurement, intervention, knowledge translation and education related to improving the wheeled mobility of both adults and children through an improved wheelchair service provision process. From the measurement, intervention and knowledge translation perspective, Rushton's expertise lies in the domains of wheelchair skills and wheelchair confidence. From the education perspective, Rushton has been working with the International Society of Wheelchair Professionals to enhance wheelchair content in health care professional university curricula globally.

Mary Goldberg is an Associate Professor in the School of Health and Rehabilitation Sciences and Education and Outreach Project Director at the Human Engineering Research Laboratories at the University of Pittsburgh. Goldberg focuses on developing and testing evidence-based online continuing education interventions for rehabilitation professionals. She is Project Co-Director for the International Society of Wheelchair Professionals grant sponsored by USAID and the NIDILRR Initiative to Mobilize Partnerships for Successful Assistive Technology Translation (IMPACT) Center. She teaches a rehabilitation engineering design course
series and two Coursera Massive Open Online Courses (MOOC) on "idea 2 Impact" and "Disability Awareness and Supports".

Yohali Burrola-Mendez is a Postdoctoral fellow at the University of Montreal and the CHU Ste-Justine Research Center. Yohali received her BS and MS in Physical Therapy and her PhD in Rehabilitation Sciences. Her research is focused on the development and implementation of educational interventions related to improving wheelchair service provision competencies among rehabilitation professionals and lay health workers in low - to high income settings. Yohali has been working with the International Society of Wheelchair Professionals since 2015.

Jon Pearlman is an Associate Professor & Chair in the Department of Rehab Science & Technology, and the founding director of the International Society of Wheelchair Professionals. Jon received his BS and MS in Mechanical Engineering, and his PhD in Rehabilitation Science. Jon is a translational researcher focused on developing and improving technologies which support physical rehabilitation and improve the lives of people with disabilities.

Debbie Wilson is an Occupational Therapist with over 30 years clinical experience. She is the Service Manager and training facilitator of Seating To Go, part of the Geneva Healthcare Group and a leading

wheelchair and seating assessment, training and repair service in New Zealand. In 2009, she helped develop the NZ Ministry of Health wheeled mobility and postural management credential for occupational therapists and physiotherapists. She is the NZ Chair for OSS and has contributed to capacity building in the Pacific Islands with Motivation Australia. Deb is currently a member of the ISWP Wheelchair Educators' Package Development Group.

Rosie Gowran is the Course Director of MSc Occupational Therapy (Professional Qualification) and Post-Graduate Certificate in Posture Seating and Wheelchair Mobility Across the Life Course, University of Limerick. She is an Implementation Scientist, Occupational Therapist and human rights activist. She adopts a human security approach to support people with disabilities, particularly people who use wheelchairs, to address service system challenges and erosion of personhood. Building sustainable communities of practice in health and social care is the overarching theme that drives Rosie's research and education philosophy to advocate for appropriate person-centred service provision as a responsibility of the whole community. Her principal research interest is to investigate health and social care system infrastructure from a human rights and health promotion perspective. She uses participatory, stakeholder-centred inclusive mixed methodologies, towards collective development of sustainable policy, implementation and provision of appropriate services to meet peoples' needs throughout life.

Sara Munera, serves as technical coordinator of the International Society of Wheelchair Professionals. Sara has a BS in physiotherapy and MS in Rehab Science & Technology. Sara is from Colombia and is the founder of Whee, a company that supports assistive technology education in latinamerica.

C17: How Do People Actually Use Their Manual Wheelchairs, and What Really Matters?

Curt Prewitt, PT, MPT Deborah Pucci
Ki Mobility, LLC, Stevens Point, Wisconsin, USA
MS, PT, ATP Curt Prewitt, Director of Education
PT, MPT Deborah Pucci, Clinical Educator

Learning objectives

1. Following this presentation, participants will be able to cite 2 examples of how end users move about in wheelchairs during everyday life.
2. Following this presentation, participants will be able to describe 3 physical principles that impact propulsion efficiency of a manual wheelchair.
3. Following this presentation, participants will be able to describe 3 component selections that impact propulsion efficiency of a manual wheelchair.

Abstract

Every manual wheelchair user would like their chair to be a high-performance machine. Performance is impacted by principles involved in translating human movement into movement of a wheelchair and factors that contribute to energy loss. In order to help end users achieve maximum performance, persons involved in the wheelchair selection process need to have a fundamental understanding of how people use their wheelchairs, and how those wheelchairs function.

This presentation will examine the real-world behaviors of manual wheelchair users and discuss the mechanical principles and factors that affect propulsion efficiency. In addition to explaining some details of the science involved, we hope to inspire participants to think critically about their current understandings and beliefs on this topic.

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adults. *Archives of Physical Medicine and Rehabilitation*, *90*(7), 1076–1083. https://doi.org/10.1016/j.apmr.2008.10.034
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Presenter biography

Curt Prewitt is Director of Education for Ki Mobility. He has a BS in Exercise Physiology and an MS in Physical Therapy from the University of Colorado. He practiced as a physical therapist in a number of settings for a few years, most prominently in long term care, where he gained experience with seating and wheeled mobility. He transitioned from a practicing therapist to a manufacturer's representative, eventually moving into sales management and focusing on complex rehab technology. Throughout his tenure on the manufacturer's side in the complex rehab arena, he has dealt largely with pediatric positioning and mobility products. He has previously also served as a product trainer/product specialist, teaching product features and clinical application, as well as coordinating continuing education presentations, both credited and non-credited. He has presented continuing professional education courses across the US and internationally.

D20: Strategies for Online Training in Seating & Mobility Complimented with Telehealth

Dr. Mark Schmeler, Ms. Madelyn Betz
University of Pittsburgh, Pittsburgh, USA
Dr. Mark Schmeler, Associate Professor
Ms. Madelyn Betz, Research Assistant

Learning objectives

Upon attending this session learners will be able to:

1. List 3 findings of research studies related to the outcomes of telehealth services for seating and mobility.
2. Explain 3 factors that have contributed to the shift to online training.
3. Identify 3 strategies to support remote student clinical observations.

Abstract

The recent global pandemic created many challenges in the delivery of seating and mobility services and further impacted student clinical training. For years clinical researchers at the University of Pittsburgh and others have investigated the feasibility and effectiveness of telehealth strategies in the provision of seating and mobility. Likewise, many academic programs have been shifting to online education. This session will review recent research in telehealth as it applies to seating and mobility services as well as current trends for online clinical education. This session will then describe a new online/hybrid Master of Rehabilitation Technology degree program and how telehealth strategies were applied to address student clinical observations. Finally, the perspectives of a graduate student and clinical instructor in the program will be shared for discussion.

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Presenter biography

Mark Schmeler is an Associate Professor and Vice Chair for Education & Training in the Department of Rehabilitation Science & Technology at the University of Pittsburgh. He oversees all aspects of the

graduate training curriculums and continuing education in the field of Assistive Technology. He is also an Occupational Therapist and Assistive Technology Professional with over 30 years of experience. He continues to practice part-time at the Center for Assistive Technology at the University of Pittsburgh Medical Center where he also serves as Interim Director. His area of research is focused on clinical outcomes and service delivery models to foster evidence-based practice and equitable policy for access to products and services. He has published several peer-reviewed articles and position papers related to tool development, registries, telehealth, and best-practices in Assistive Technology.

Madelyn Betz is a graduate student in the Master of Rehabilitation Technology program at the University of Pittsburgh. She also works as a research assistant on a project related to the investigation of global policies related to wheelchair services to identify new models for implementation in the United States.

A18: Diversifying Standing Opportunities for Children: Clinically reasoning the options and justifying their funding

Mr Jamie Cockle
SWCO, Sydney, Australia
Product Specialist

Learning objectives

1. To recognise the clinical application of four different styles of standing frame available to a child
2. Recognise five benefits of incorporating standing as part of a 24-hour positioning approach
3. Identify three barriers to establishing effective standing programs at home

Abstract

Standing upright is widely recognised as one of the most important evolutionary changes in our history as a species. It is documented that prolonged periods of sitting can increase mortality and have detrimental impacts on our cardiovascular, metabolic, and mental health (1,2).

Prolonged sitting, such as office workplace environments, is regarded by many to be an emerging public health concern, with periods longer than 20-30 minutes considered to be clinically significant (3). Whilst the need for us to regularly move and change position throughout our day is now widely recognised, for those with a physical disability, access to positions such as standing or weight-bearing remains a big challenge.

To achieve optimum outcomes, selection of sufficient equipment based on individual characteristics is necessary (4). Seating assessment techniques among other assessment tools can provide a wealth of information relating to biomechanics and physical evaluation (5). The data gleaned from these assessments can further inform the selection of appropriate standing frames in relation to the function of the user. This data can also highlight contraindications to the use of particular devices for the individual.

How can we support clients with varying clinical presentations to achieve a common goal of weight-bearing and standing? How do we educate and nurture how standing is prioritised in a child's day to gain the understood benefits? How do we harness the clinical reasoning and understanding of these benefits to justify the required funding?

This workshop provides an introduction to the different styles of standing/weight-bearing that can be supported through equipment provision. The presenter will draw on case studies and clinical experience to explore these options and how one can promote optimum outcomes. We will discuss the barriers to why appropriate standing programs aren’t followed and how we can understand these to improve compliance and tolerance.

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Presenter biography

Jamie Cockle completed his training in Physiotherapy at Cardiff University, UK in 2015. He is passionate about Paediatrics and ensuring all children, no matter their ability have opportunities to be well supported as they grow and develop. He understands how comprehensive postural management can have a strong influence on functionality, health, and the ability to lead a positive lifestyle.

Jamie has gained extensive clinical experience during his work as an acute neurological and orthopaedic Paediatric Physiotherapist within the NHS with further roles within highly specialised community services for children with rare conditions. These experiences enabled him to work closely with a diverse range of clients understanding not only their needs but the families that support them as well.

Since arriving in Australia in 2019 Jamie has applied his acquired clinical knowledge and understanding in his work as a product specialist, working with a wide range of products and solutions, pairing up the right assistive technology with the right clients.

B17: Culturally Safe Practice in Aotearoa New Zealand as a Wheelchair and Seating Therapist

Miss Jazz Fox,
Wheelchair & Seating Therapist
Auckland District Health Board, Auckland, New Zealand
Mrs Liz Turnbull,
Service Manager
Geneva Healthcare – Seating To Go

Learning objectives

1. Understand wheelchair and seating practice in the context of Aotearoa, New Zealand and develop an appreciation of the Māori world view and how this complements holistic practice.
2. Be able to implement a theoretical model into their everyday practice based on Te Whare Tapa Whā but with a wheelchair and seating focus.
3. Become familiar with Te Waka Oranga as a goal setting and care planning tool that could add to their clinical tool kit.

Abstract

When working with clients who have complex postural management and mobility needs, wheelchair and seating practitioners are required to draw on all aspects of a person in order to provide the best and most suitable solution for them. Our organisation's values are Welcome (Haere Mai), Respect (Manaaki), Together (Tuhono) and Aim High (Angamua). These values underpin our service delivery and clinical practice.

As a Māori Occupational Therapist practicing in wheelchairs and seating, the development of a guiding model that merges Western and Māori perspectives is important. The model Te Whare Tapa Whā developed by Professor Sir Mason Durie identifies that the Māori world view has four key elements that require attention to achieve an optimal health outcome. Taha Whānau , Taha Wairua, Taha Tinana, Taha Hinengaro are the corner stones of wellbeing and offer a unified holistic theory of health. These four corner stones are represented by the four pillars of a wharenui. If one cornerstone does not have structural integrity, the building will collapse.

Using Te Whare Tapa Whā as a guide, a complementary model was developed that leads wheelchair and seating practitioners through their journey and experience with clients as they work towards a wheelchair and seating solution. The model encourages a depth of thinking that can lead to successful clinical outcomes for Māori and all of our clients.

A case study will be shared to introduce the model which is based on a broader representation of a house and how to develop an effective clinical relationship. The client and their whānau open their home to us both literally and figuratively. The therapist steps across the threshold and establishes whanaungatanga (a relationship, belonging and connection between people and communities) with the client. In addition a Māori world view goal setting model will be introduce as a complimentary tool.

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Presenter biography

Jazz Fox has been working at Mobility Solutions since graduating from AUT in 2018 as an Occupational Therapist. Jazz and her whānau are affiliated to the iwi - Te Aupōuri which is located in the far north of Aotearoa. While working at Mobility Solutions, she has gained a passion for wheelchair and seating and has developed an interest and strong commitment for improving Māori health outcomes.

Liz Turnbull was the Team Leader for Mobility Solutions, Wheelchair and Seating service for people with complex needs in the greater Auckland region prior to moving to a new role as Service Manager for Geneva Healthcare – Seating To Go. Liz graduated in 1997 and has worked in NZ and the UK in a number of different fields. She is a member of the national Enable Panel for the credentialing of therapists in Wheeled Mobility and Postural Management – Level 2 and complex custom fabrication. Liz joined the Mobility Solutions team in 2005 when her keen interest in working with people to achieve wheelchair and seating outcomes that support them to accomplish their goals was ignited. Since then she has worked clinically and in leadership, mentoring and supervising the team. She has been involved extensively in service development, working groups and professional forums with Auckland DHB, the Ministry of Health and Accessable.

C19: Balancing the options – Managing Pelvic Obliquity in Seating

Ms Angela Rowe[1], Ms Kim Vien[2]
[1]Melbourne Health, Melbourne, Australia. [2]Melboure Health, Melbourne, Australia
Ms Angela Rowe, Physiotherapist
Ms Kim Vien, Occupational Therapist

Learning objectives

1. To be able to measure pelvic obliquity objectively both postural and pressure interface mapping perspectives
2. To identify the causes and evaluate the impact of pelvic obliquity
3. To identify strategies to manage pelvic obliquity in seating

Abstract

Have you ever followed the "recipe" and not got the desired outcome? Our definitions of fixed and flexible postures can often limit our thinking and problem solving when managing posture and setting up AT solutions in seating.

We will do a deep dive into the topic of pelvic obliquity including a discussion around the assessment process involving postural and pressure measures. We will examine the causes and impact of Pelvic Obliquity on pressure injury risk, postural changes, self-propulsion efficiency, and everyday function. We will demonstrate how we assess and clinically reason through a number of video case studies. A number individualised AT solutions and the evaluation of outcomes will be presented. This will spark a debate regarding the management posture vs pressure and expand on the traditional ideas of correction vs accommodation.

Angela (Physiotherapist) and Kim (Occupational Therapist) are part of a specialist multidisciplinary seating team as part of the Young Adults Transition clinic at Melbourne Health. Our model of service allows input from differing clinical perspectives that can allow for more developed AT solutions.

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Presenter biography

Angela Rowe is a physiotherapist with over 20 years of experience, predominantly in the fields of neurology and disability. She has completed post graduate studies in the field of Postural Management and worked as a Postural Management therapist at The Royal Hospital for Neuro-disability in London. Since returning to Melbourne, Angela has worked in two Wheelchair and Seating Services at The Royal Melbourne Hospital and Monash Health. Angela has co-authored a Wheelchair organisational standard at Monash Health and been involved in various research projects and conference presentations with her Wheelchair and Seating clinic team. She has a particular passion for upskilling other therapists and has led training workshops and provided mentorship. Angela also has her own business Postural Innovations which provides bed positioning assessments, wheelchair consultations, and a product range of postural supports for 24 hour positioning.

Kim Vien is a Senior Occupational Therapist working in the disability sector specialising in the area of seating and equipment prescription. Having been in the disability sector for over 10 years, Kim has presented on the topic of seating at the 2017 & 2019 Oceania Seating Symposiums and at multiple ATSA daily living expos. Kim graduated in 2005 from the University of South Australia and completed honors in health sciences. With further studies in access consulting, she has expanded her skills to understand the built environments and how consumers and their technologies can interact more effectively. She has worked in both hospital and community settings and is now focused on improving services for adults with disabilities and their assistive technology needs.

D22: Understanding the lifespan postural issues of non-ambulant adults with CP, as measured with the Goldsmith Indices of Body Symmetry.

CHOLMES[1,2],
[1]Monash University, Peninsula Campus, Melbourne, Australia; [2]St. Vincent's Hospital Melbourne, Melbourne, Australia

Learning objectives:

Upon completion of this session participants will be able to:

1. Understand the use of the Goldsmith Indices of Body Symmetry in the measurement of postural asymmetry of the thoracic cage, pelvis and hips
2. Identify postural deterioration using the GIofBS across the lifespan of non-ambulant adults living with CP
3. Identify pain behaviours and the contribution of postural asymmetry to pain in non-ambulant adults with cerebral palsy with cognitive and communication limitations

Abstract

Non-ambulant adults with CP often require customised seating and bed positioning systems to provide adequate postural support, maximise comfort and function and reduce the risk of pain and pressure injury. These postural interventions are readily available, yet adequate measurement of the complex three-dimensional rotary postural asymmetries experienced by many non-ambulant adults with CP, to guide and monitor prescription of such interventions has been lacking. The measurement, monitoring, and management of postural complications is critical given the impact on health and functioning inclusive of pain, quality of life, function, carer burden and life expectancy. A lack of consensus regarding appropriate clinical postural measurement in non-ambulant adults with CP has been identified alongside limitations due to patient complexity.

The GIofBS can be used to measure and monitor postural asymmetries of thorax, pelvis and hips, providing clinicians with relevant objective postural information upon which to base postural interventions.

Repeated and regular postural measurement using the GIofBS can demonstrate whether musculoskeletal asymmetries are static or changing in this population. This approach may be useful for screening for deterioration in musculoskeletal status or for assessing the longer-term outcomes of interventions to stabilise or improve postural asymmetries in lifespan management of this complex population.

The incidence and severity of pain in non-ambulatory adults with CP is high and may be associated with postural asymmetries. Proxy reporting, despite limitations, may remain the best option to assess pain in adults with significant cognitive and communication impairments and gain an understanding of the relationship between posture, as measured with the GIofBS, and pain.

This workshop will present data on the use of the GIofBS to monitor progression of postural asymmetry and describe the relationship between postural asymmetry and pain in a group of non-ambulant adults with cerebral palsy attending a tertiary multidisciplinary healthcare service.

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Presenter biography

Carlee Holmes is the senior physiotherapist in the Young Adult Complex Disability Service (YACDS) at St. Vincent's Hospital Melbourne and also works in private neurological practice. The YACDS is a transition service from paediatric to adult healthcare for young adults with complex medico physical disabilities including cerebral palsy.

Carlee has a particular interest in the measurement of postural asymmetry in non-ambulant adults with cerebral palsy and is currently completing a PhD investigating "Assessment and Management of the common postural characteristics in young adults with Cerebral palsy". She has also gained additional certification in Postural Care and Measurement of Body Symmetry.
Carlee is a research associate for CP Achieve and involved in the consumer working group. She is also a member of the American Academy for Cerebral Palsy and Developmental Medicine Lifespan Care Committee