ABSTRACTS

TUESDAY 5TH APRIL 2022

KEYNOTE: Turning the tables on brokenness, fragility, and disability through whakawhanaungatanga – community connectedness, whanau and engaging in the world.

Amanda Lowry

Abstract

A new life began the moment I broke my neck. A new life, not only for me, but for my young family too. In this uncharted territory, we struggled to visualise how we were going to connect and engage with each other – our whanau, the environment and friends. The role of the mobility and seating community was vital, in helping us negotiate this new terrain. For many whanau, disability (congenital or impaired) brings with it, trauma, pain and fear. In your mahi (work) you pay attention to what is important to the whanau (people and families) that you work with, gradually introducing us to the strange world of mobility equipment. The innovations and technologies of assistive devices underpin 'how' we are to be in the world. They create opportunities for engagement in the built and natural environment – with friends and whanau in ways we never thought possible. For your awhi (care) we are grateful!

Yet, there is inequality embedded within this korero (conversation). There are different systems within countries and between countries. Some of us are provided with all the equipment and support that need, whereas others have to fight, petition and pay to access the equipment that will enable them to have a life – not necessarily a good life, but a life.

Engagement with disability heightens the awareness that disabled lives are shaped not only by structural and social barriers but exclusion and inequality. The mobility and seating community are changemakers. You respond to need, driving innovation and sharing knowledge to ensure that the disabled population have access to the latest life changing technologies. These technologies enable us to engage and contribute to our families and communities. They allow us to be comfortable in our bodies; to move through the world; to access nature, to swim, climb and play. For many of us, you are very important people in our disability stories, helping us reclaim what we thought was lost; our freedom and opportunities to feel fully human.

Speaker Biography

Amanda broke her neck eight years ago in a surfing accident. The accident, that rendered her a tetraplegic, set her life on a new trajectory. Post – injury she slowly began to build a new life with her young family finding innovative ways to do the things she loved. Amanda got back in the water and spent two years learning to move her body and swim again. She started playing wheelchair rugby and found the freedom and joy of competitive sport, and connected with a fabulous community that helped her negotiate the realities of her new body. Both swimming and wheelchair rugby offered Amanda high-performance opportunities, she chose swimming. There has never been an athlete with her level of impairment ever swim for

New Zealand. Amanda believes that involvement in sport is transformational and is currently working towards a PhD examining welfare and care in high-performance disability sport. Prior to her accident she had received a Masters SocSc for her work on Māori State engagement. She works with several not-for-profit organisations in the disability sector. Her research interests examine the structures and institutions that underpin the exclusion of minority groups.

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

Ms. Amira Tawashy[1], Ms. Sara Munera[2], Ms. Krithika Kandavel[2], Dr. Mary Goldberg[3], Dr. Lee Kirby[4], Dr. Paula Rushton[5], Ms Samantha Shann[6]
[1]Dalhousie University, Halifax, Canada. [2]International Society of Wheelchair Professionals (ISWP), Pittsburgh, USA. [3]University of Pittsburgh, Pittsburgh, USA. [4]Nova Scotia Health Authority, Halifax, Canada. [5]University of Montreal, Montreal, Canada. [6]World Federation of Occupational Therapists, Newcastle, United Kingdom
Ms. Amira Tawashy, Occupational Therapist
Ms. Sara Munera,Technical Coordinator
Ms. Krithika Kandavel, Research and Training Coordinator
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.

3) Keeler L, Kirby RL, Parker K, McLean KD, Hayden JA. Effectiveness of the Wheelchair Skills Training Program: a systematic review and meta-analysis. Disabil Rehabil Assist Technol. 2019 May;14(4):391-409. doi: 10.1080/17483107.2018.1456566. Epub 2018 Apr 4. PMID: 29616832.

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.

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:

1) Althoff T, Sosič R, Hicks JL, King AC, Delp SL, Leskovec J. (2017) Large-scale physical activity data reveal worldwide activity inequality. *Nature*. Jul 20;547(7663):336-339.
2) Dicianno B. E., Morgan A., Lieberman J., & Rosen L. (2016). Rehabilitation Engineering & Assistive Technology Society (RESNA) position on the application of wheelchair standing devices: 2013 current state of the literature. *Assistive Technology*, vol. 28, Issue 1, pp. 57–62.
3) Magasi S, Wong A, Miskovic A, Tulsky D, Heinemann AW (2018). Mobility

Device Quality Affects Participation Outcomes for People with Disabilities: A Structural Equation Modeling Analysis. Arch Phys Med Rehabil. Jan;99(1):1-8

FOLLOWED BY 30 MIN LIVESTREAM PANEL DISCUSSION

What is the current and potential for 'data'?

Karin Leire (Sweden)
Mark Schmeler (USA)
Fi Graham (NZ)
Chair: Rachael McDonald (Australia)

Learning objectives

1. To identify where data is or can be routinely collected and stored
2. To discuss ethical, privacy and other issues around data collection and storage
3. To understand the potential and limitations of data.

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

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.

Fiona Graham is a Senior Lecturer with the University of Otago teaching postgraduate interprofessional rehabilitation. Her research areas include telehealth in rehabilitation, knowledge translation and participation focused interventions, particularly for paediatric populations. She resides in Christchurch, New Zealand.

Rachael McDonald is clinical, teaching and research professor who aims to conduct research with people with disabilities to support and enable participation as well as educate the health professionals of the future. This is done by focussing on collaborative multidisciplinary research and teaching, concentrating on emerging areas of health, technology and emerging technologies and identifying, and addressing barriers.

They have over 100 publications, and attracted over $10million in research funding, and supervised 29 research students.

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

2) Comprehensive Palliative Care in MS: CMSC Consensus Statement and Proposed Guidelines. https://www.mscare.org/page/palliative

3) Kluger BM, Persenaire MJ, Holden Sk, et al. Implementation issues relevant to outpatient neurological palliative care. *Ann Pall Med.* 2018; 7(3)339-348.

4) Hidding JT, Beurskens CH, van der Wees PJ, van Laarhoven HW, Nijhuis-vander Sanden MW. Treatment related impairments in arm and shoulder in patientswith breast cancer: a

systematic review. *PLoS One*. 2014;9:e96748 https://doi.org/10.1371/journal.pone.0096748.

5) Gross SE, Pfaff H, Swora M, Ansmann L, Albert U, Gross-Kinkel A Healthdisparities among breast cancer patients with/without disabilities in Germany. *Disability Health J.* 2020; 13. https://doi.org/10.1016/j.dhjo.2019.100873.

6) de Padua AL, Strickland K, Patrick M, Ditunno JF. Spinal cord injuredwomen's treatment of breast carcinoma: alert to complications. *Spinal Cord Ser Cases.* 2018;4:46.

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!

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.

Content references:

1) Goda, H., Hatta, T., Kishigami, H., Suzuki, A., & Ikeda, T. (2015). Does a Novel-Developed Product of Wheelchair Incorporating Pelvic Support Prevent Forward Head Posture during Prolonged Sitting? Plos One, 10(11). doi: 10.1371/journal.pone.0142617
2) Vidt, M. E., Daly, M., Miller, M. E., Davis, C. C., Marsh, A. P., & Saul, K. R. (2012). Characterizing upper limb muscle volume and strength in older adults: A comparison with young adults. Journal of Biomechanics, 45(2), 334–341. doi: 10.1016/j.jbiomech.2011 .10.007
3) Fukumoto, Y., Ikezoe, T., Yamada, Y., Tsukagoshi, R., Nakamura, M., Takagi, Y., … Ichihashi, N. (2015). Age-Related Ultrasound Changes in Muscle Quantity and Quality in Women. Ultrasound in Medicine & Biology, 41(11), 3013–3017. doi: 10.1016/j.ultrasmedbio.2015.06.017

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.

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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5) Betz K, Dicianno B, Pearlman J, Karg T, Mandala M, Jacobs K, Bagian T. Clinical Limits of Use Tools (CLOUT) for Wheeled Mobility Devices. February 2018. www.ncps.va.gov/professionals/publications/CLOUT.asp

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.

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.

Content references:

1) Kirby RL, Rushton PW, Smith C, Routhier F, Axelson PW, Best KL, Betz K, Burrola-Mendez Y, Contepomi S, Cowan R, Giesbrecht E, Kenyon LK, Koontz A, MacKenzie D, Mortenson B, Parker K, Smith E, Sonenblum S, Tawashy A, Toro M, Worobey, L. Wheelchair Skills Program Manual Version 5.1 (2020). Published electronically at Dalhousie University, Halifax, Nova Scotia, Canada. www.wheelchairskillsprogram.ca/eng/manual.php.
2) Kirby RL, Rushton PW, Routhier F, Demers L, Titus L, Miller-Polgar J, Smith C, McAllister M, Theriault C, Matheson K, Parker K, Sawatzky B, Labbé D, Miller WC. Extent to which caregivers enhance the wheelchair skills capacity and confidence of power wheelchair users: a cross-sectional study. Arch Phys Med Rehabil. 2018;99:1295-302.
3) Keeler L, Kirby RL, Parker K, McLean KD, Hayden J. Effectiveness of the Wheelchair Skills Training Program: a systematic review and meta-analysis. Disabil Rehabil Assist Technol 2019;14:391-409.

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.

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

Content references:

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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.

D2: Slipping and sliding: exploring the link between horizontal shear forces and sliding frequency.

Bart Van Der Heyden
Private Practise 'de kine', gent, Belgium

Learning objectives

1. Describe the impact of different wheelchair adjustments on sliding, seating tolerance, head position and upper extremity function
2. Describe the impact of different pelvis support systems on sliding frequency
3. Discuss at least 3 postural interventions for dealing with sliding challenges
4. Be able to advise and implement a postural intervention plan for users with common seating challenges for maintaining posture and long-term functional ability.

Abstract

Inappropriate wheelchair seating is common. Among long-term care residents, the prevalence rate of inappropriate seating was 58,6%, the implications of which are discomfort, poor positioning and mobility and skin integrity issues (1 and 2). Individually prescribed wheelchairs are recommended to ensure proper fit and enhance function (3,4).

But what is the effect of common seating interventions and wheelchair adjustments on sliding frequency and is there a link between the sliding tendency of wheelchair users and the total horizontal shear force?

Several wheelchair users with sliding tendencies will be examined and discussed. The initial sliding frequency and repositioning frequency will be recorded, and the total horizontal shear force will be measured using the Ishear measuring tool. Then a seating assessment will be preformed. Based on the wheelchair user's needs and the findings of the seating assessment, common seating interventions will be implemented:

- Back support adjustments (tilt and recline)
- Introduction of a 2 and 4 point pelvic positioning system
- Different mounting angles of 2 point positioning systems: 45 degree vs. 70 degree angle

These adjustments have an influence on the sliding frequency and total horizontal shear force. The findings of the cases will be analyzed and the impact of different postural control techniques will be discussed.

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Presenter biography

Bart Van Der Heyden has specialized in the field of seating, wound care and mobility for over 25 years. After studying physical therapy in Gent, Belgium, he gained experience in Germany providing seating and therapy for children with Cerebral Palsy. After working in a rehab setting in the USA he offered clinical consultations to wheelchair users, clinicians and manufacturers worldwide. He has also

started a physical therapy practice with his wife in Belgium.

Bart has developed multiple training courses and workshops on skin management, seating assessment, seating techniques & interventions for different user populations. He has presented for seating specialists all over the world and he developed a seating approach for clinical problem solving and maximizing outcomes.

Bart is known as a skilled and experienced clinician and presenter with a global, hands-on and multi-disciplinary view on clinical practice and seating.

More info: www.super-seating.com

D3: Segmental Assessment of Trunk Control (SATCo)

Mr Robert Norman, Ms Amy Bjornson
Sunrise Medical, Sydney, Australia
Mr Robert Norman, Product Specialist Clinical Hub
Ms Amy Bjornson, Clinical Director – Asia Pacific

Learning objectives

1. The participant will be able to describe how the SATCo can be used as an outcome tool for postural Control
2. The participant will be able to state at least one adjustment that facilitates segmental targeted training in the person's trunk posture.
3. The participant will be able name 2 approaches in integrating positioning equipment functionally into daily routines

Abstract

This seminar is focused on the application of a treatment approach called "Segmental Assessment of Trunk Control", (SATCo) in the Pediatric Population. Many of our treatment paradigms in therapy and the application of Assistive Technology are based on facilitating proximal stability for distal function. SATCo is an alternative treatment approach that is based on targeted training to gain control of trunk posture. Therapist's hands or therapy supports are placed on the child's trunk directly beneath the segment where control is found to be difficult in the child. This support is gradually lowered as control is gained. During the seminar, attendees will learn about SATCo and the underlying research that was led to its development, this will be discussed specific to the selection and set-up in standing frames and a therapy bench. Additionally the SATCo can also be used as an outcome tool for justifying the clinical effectiveness in sitting and standing therapy. Case examples will be used to demonstrate this approach.

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Presenter biography

Robert Norman is a seating and mobility product specialist in Australia and is currently working in the Sunrise Medical Clinical Hub. Robert has 17 years of experience in seating and mobility industry in the UK as well as Australia for the last 5 years. His past experience is as a Technical Trainer at JCM seating in the UK, Paediatric Product Specialist for Hewerdines in the UK, working with a children's charity. Robert has also worked for equipment suppliers in Australia as a senior AT Consultant. Robert has presented nationally in Australia on various seating and mobility topics.

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.

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.

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.

P1: Whiria te tangata with Dynamic Seating - A case Study

Ms Victoria Cotton
Northland DHB, Whangarei, New Zealand
Physiotherapist/Wheelchair Therapist

Learning objectives

1. Name 3 Seating Dynamic Accessories that may increase tolerance in sitting

2. Describe 2 modifications to allow change of force in dynamic seating

3. Identify 3 different seating components to assist with positioning

Abstract

This is a case study poster presentation of a young man(age 21) using complex seating and wheelchair with Dynamic components to assist with management of tone and movements. The client has had numerous complex surgeries and many wheelchair and seating interventions over the years. I have been his therapist for approx. 20 years.

He is very keen to share the latest model with you as many others may benefit from his journey .

We ,the client, whanau and members of Wheelchair Services, have grown together overcoming many challenges not to mention our ages, technology and life experiences The case study has a WhOM outcome measure.

Content references

1) Resna - Position Statements on Dynamic Seating
2) Let's get moving ! Providing movement within a wheelchair . Michelle L Lange. e ParentConnect ,Featured Topics, Mobility05/25/2018 admin.
3) Seating Dynamics -Revolutionizing the Dynamic Footrest Marc Hagen .Closing the Gap March 17,2021

Presenter biography

Victoria Cotton is a physiotherapist originally from UK -qualified in UK. She worked for many years in the Middle East and New Zealand as Wheelchair and Seating therapist in Northland for Te Poari Hauora a Rohe o Te Tai Tokerau (NorthlandDHB)

We travel around Te Tai Tokerau supporting clients and Whanau which has many Health and Service inequalities.

P2: "He Took Off...Fast!": A Photo Narrative of Modified Ride-On Car Use by Children and Families

Ms. Reham Abuatiq, Dr. Heather Feldner
University of Washington, Seattle, USA
Reham Abatiq, PhD Student
Dr Heather Feldner, Assistant Professor

Learning objectives

After this poster session, participants will be able to:

1. Identify the role of photovoice narratives as a participatory action research method applied to the field of pediatric positioning and mobility.
2. Understand at least three perceived facilitators and barriers of modified ride-on car access and use by children with CP or developmental delay and their families.
3. Discuss how the visual impact and narration of child and family technology experiences can be leveraged to improve products and processes related to mobility equipment.

Abstract

Powered mobility devices (PMDs) can increase independent mobility and enhance function and participation in children with disabilities. Over the past decade, modified ride-on cars have emerged as one alternative early powered mobility option for young children with disabilities such as cerebral palsy (CP) or developmental delay.

Although popularity of modified ride-on cars has been growing, little is known from families' own point of view about their perceived mobility priorities and experiences with the cars over a longitudinal period. We aimed to empower families of children with CP or developmental delay to share their mobility stories and experiences with modified ride-on cars using their own words and pictures, via a participatory research technique known as Photovoice Narrative. During an overarching longitudinal study with 19 families, where children between the ages of one and four years old and their caregivers were provided with a custom modified ride-on car for home and community exploration, mobility, and socialization, a subset of 14 families completed this participatory study as co-researchers. Each caregiver was given a digital research camera with a blank memory card and a list of guiding questions, but had the freedom to take photos of anything they felt was meaningful or important related to their child's modified ride-on car use. Participants then selected their favorite or most meaningful photos, and provided brief narrations. Narrations which were transcribed verbatim and grouped into themes alongside the photos using constant comparison. Three preliminary themes emerged from the data: 1) *My Child CAN…*2) *Mobility Begets Agency and Community Building*; and 3) *Technology Challenges and Barriers Remain.* This study demonstrates that Photovoice Narratives are an accessible and visually compelling way to understand how modified ride-on cars may fit or misfit in the lives of children with disabilities and their families.

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Presenter biography

Ms. Reham Abuatiq is a pediatric physical therapist and second-year PhD student in the Rehabilitation Sciences Program at the University of Washington in Seattle, WA, USA. Originally from Amman, Jordan, Reham holds a Bachelor's Degree in Physical Therapy and a Master's in Health Services Management from Yarmouk University and the Royal College of Surgeons in Ireland. She has extensive experience in training physical therapy students in public hospitals, outpatient rehabilitation clinics, and special education schools, and worked as a clinician at Al-Hussein Society for Physically Disabled Children with children with cerebral palsy, spina bifida, Duchenne Muscular Dystrophy, and Down syndrome. Her research interests include advancing access to physical therapy services for children in Jordan, improving equity for children with disabilities in school and community settings, and supporting the transition from adolescence to adulthood in young people with cerebral palsy.

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.

P3: Trends in complex wheelchair and seating equipment provision in Tāmaki Makaurau, Aotearoa

Maria Whitcombe-Shingler
ADHB, Auckland, New Zealand, Educator

Learning objectives

1. To consider the trends in complex wheelchair and seating provision over the last decade.
2. Increase awareness of a holistic approach to wheelchair and seating assessment and equipment provision that considers the social, environmental and lifestyle needs of the individual alongside their clinical requirements, using the principle of Whanaungatanga, connecting.
3. Consider use of clinical data as the basis for improving outcomes and use of resources.

Abstract

Auditable data is increasingly available and accessible from digitised clinical records, to inform clinicians of overall practice trends in complex wheelchair and seating equipment provision, as opposed to anecdotal evidence. It gives useful feedback on client demographics and equipment used that can help inform equity and effectiveness. *'He mauri tō te tangata, he whakapapa tōna, he mana motuhake'* Everyone has mana and identity that makes that person no more and no less important than the next person.

Mobility Solutions is based in Tāmaki Makaurau, Auckland, a large metropolitan city in the North Island of Aotearoa, New Zealand. It is the most populous urban area in the country, and has an urban and rural population of about 1,717,500 (June 2020). Data is analysed to demonstrate practice changes and outcomes within the service in the last decade, and the importance of enabling and increasing social connection through effective mobility and positioning.

'*Me hui kanohi ki te kanohi kia rongo i te mauri o te tangata!'* It is important to meet face to face, eye to eye, breath to breath to get a full understanding of the people we are working with.

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Presenter biography

Maria Whitcombe-Shingler is an occupational therapist, who works at the Mobility Solutions Complex Wheelchair and Seating Service in the Auckland Region. Her main role is currently as an educator and mentor for therapists new to the service. She completed her Masters researching adult users' experiences and perspectives of using multifunction power wheelchairs in Aotearoa, New Zealand.

P4: “We can do it together” Co-adaptation of the Wheelchair Skills Training Program for children

Beatrice Ouellet[1,2], Dr Paula Rushton[3,4], Dr Marie-Eve Lamontagne[1,2], Dr Krista Best[2]
[1]Laval University, Quebec, Canada. [2]Centre for Interdisciplinary Research in Rehabilitation and Social Integration, Quebec, Canada. [3]Montreal University, Montreal, Canada. [4]CHU Ste-Justine Research Center, Montreal, Canada
Beatrice Ouellet, Occupational therapist and PhD student
Dr Paula Rushton, Associate professor
Dr Marie-Eve Lamontagne, Associate professor
Dr Krista Best, Assistant professor

Learning objectives

After attending the presentation, participants will be able to:

1. Identify 3 obstacles limiting the provision of pediatric wheelchair training services.
2. Identify 5 children and parents’ needs regarding wheelchair training.
3. Describe 6 essential components that a wheelchair training intervention should include to respond the needs of children and their family.

Abstract

Introduction. Independent wheelchair mobility represents more than moving through spaces for children with physical disabilities. It facilitates exploration and interaction with the environment, thus fostering global development and social participation. However, wheelchair use is a complex activity that requires training for safe and effective mobility. An evidence-based Wheelchair Skills Training Program (WSTP) has been used effectively by rehabilitation clinicians to train adults, but there are limited pediatric-specific guidelines. Preliminary evaluations of the WSTP with children suggested that modifications are needed to increase adherence and effectiveness. The aim of this study is to co-adapt the WSTP for children ages 5 to 12 years (WSTP-Ped). **Method.** Using nominal group techniques, nine online meetings were conducted with an international committee of experts in wheelchair training. Consensus for modifications to the WSTP for children was obtained. Interviews with 5 parent-child dyads were conducted to identify families’ needs and preferences for wheelchair training. **Preliminary results.** Pediatric training should focus on occupational goals and structured play-based approaches. Parents should be active partners of the training team. A developmental progression of wheelchair skills acquisition can help rehabilitation clinicians define a suitable customized practice schedule depending on age, expected level of independence, and goals. Certain skills of the WSTP should be adapted to pediatric wheelchair components and physical characteristics of younger children (e.g. picks objects from floor). Tips and tricks for teaching wheelchair skills to children should be added to the WSTP manual. **Conclusion.** This project will result in integration of pediatric considerations in the WSTP manual, and creation of a pediatric specific manual, derived in partnership with its intended users (ie., children, clinicians and parents). The WSTP manual will be available to pediatric rehabilitation clinicians as an easy-to-use resource for wheelchair mobility training. The next step is to conduct a randomized control trial to evaluate effectiveness.

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Presenter biography

Beatrice Ouellet is an occupational therapist with experience working in pediatrics. She completed a master's degree in public health and is now a doctoral student in clinical and biomedical sciences (option rehabilitation) at Laval University (Quebec, Quebec, Canada). Her project aims to co-develop and evaluate a wheelchair training program for children that is based on the Wheelchair Skills Program. She is a member of the Wheelchair Skills Program pediatric sub-committee. She is supervised by Krista Best, PhD and Marie-Eve Lamontagne, OT PhD.

P5: Wheelchair Skill Development for a Therapy Team

Miss Amy Hughes, Mrs Maria Whitcombe Shingler
ADHB, Auckland, New Zealand
Miss Amy Hughes, Kaiwhakaora Ngangahau
Mrs Maria Whitcombe Shingler, Kaiwhakaora Ngangahau

Learning objectives

Following this poster session, participants will:

1. Learn about the journey of wheelchair skill development amongst a team of therapists measured by a pre and post survey.
2. View the resources developed to facilitate provision of wheelchair setup and skills training.

Abstract

From identifying learning needs to skill competency, the journey of service improvement can take time. This poster demonstrates our Ready to Roll wheelchair skill development for therapists within the Mobility Solutions service.

As clinicians working with complex clients, we recognised the need to up skill our team to achieve more effective wheelchair training outcomes. Our goal was to ensure that there is consistency in our practice through having standardised processes and skill level within our team.

Utilising the initial training and experience from Debbie Wilson and the Seating to Go service and drawing on the Wheelchair Skills Programme (Kirby et el.2018) we embarked on a service improvement journey. We completed a pre wheelchair skills training confidence survey across the team which identified the need for skill development, standard practice procedures and equipment to facilitate safe and effective training. Understanding our client population and improving on client outcomes has guided us in this project.

We then completed a post wheelchair skills training confidence survey across the team with excellent results and helpful feedback for ongoing training. Through measuring baseline confidence and setting specific goals we have been able to increase the awareness, skill and confidence level of the therapy team. These outcomes are expected to support clients to become more effective wheelchair users.

This poster aims to share the resources developed throughout this mahi work which could be of benefit to other service providers thereby weaving people together, whiria te tangata.

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Presenter biography

Maria Whitcombe-Shingler is an occupational therapist, who works at the Mobility Solutions Complex Wheelchair and Seating Service in the Auckland Region. Her main role is currently as an educator and mentor for therapists new to the service. She completed her Masters researching adult users' experiences and perspectives of using multifunction power wheelchairs in Aotearoa, New Zealand.

Amy Hughes completed her undergraduate Occupational Therapy degree at the Auckland University of Technology in 2008. Amy has worked in numerous practice areas including Palliative care, Spinal Rehabilitation and Community Occupational Therapy in New Zealand and Australia. Amy has a passion for wheelchair and seating and has spent the majority of her career working within this specialist area with both the Mobility Solutions and Seating To Go wheelchair and seating assessment teams.

P6: Monitoring Wheelchair Tyre Pressure as part of wheelchair user education

Mr Bill Contoyannie[1,2], Ms Angela Rowe[1,2], Ms Kim Vien[1]
[1]Melbourne Health, Melbourne, Australia.
[2]Monash Health, Melbourne, Australia
Mr Bill Contoyannie, Rehabilitation Engineer
Ms Angela Rowe, Physiotherapist
Ms Kim Vien, Occupational Therapist

Learning objectives

1. To understand the importance of maintaining tire pressure and its impact on wheelchair use
2. To evaluate the effectiveness of tyre pressure education for young adults.
3. To learn strategies around supporting someone with their wheelchair maintenance

Abstract

Young adult wheelchair users seen by the specialised wheelchair and seating clinics at both Monash and Melbourne health have goals relating to optimising the use and performance of their wheelchairs by reducing the effort to push or propel the wheelchair. Research has established that performance efficiency in wheelchair use is directly related to wheelchair tyre pressures more than the wheelchair mass (De Groot S, Vegter RJ, Van der Woude LH - 2013).

The wheelchair tyre pressure was recorded for every client when attending the clinics with a view to establishing both the level that wheelchair tyres are maintained to, as well as part of an introduction for the clients to the performance of their wheelchairs.

Data collected over a number of years indicated that there were discrepancies between left and right wheelchair tyres as well as lower tyre pressure compared to the relevant ideal pressure to which the wheelchair tyres should have been set. During clinic visits the tyre pressures were set correctly and education was delivered to the client to optimise the performance and use of their wheelchair. In subsequent clinic visits, tyre pressure measures demonstrated similar lower tyre pressures indicating little to no change in behaviors to maintain optimum tyre pressures. The data is analysed and presented to show the general setting of tyre pressure of the wheelchairs at these clinics including the same client/wheelchair on return visits.

As clinicians, we need to consider the barriers to maintaining optimum tyre pressure including poor access to a tyre compressor, need for physical or cognitive support, and lack of education on the importance of maintaining optimum tyre pressure. Further research would be beneficial to understand these barriers and establish more effective strategies to maintain tyre pressure and optimising the use and performance of wheelchairs

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Presenter biography

Bill Contoyannis is a qualified rehabilitation Engineer with a degree in Mechanical engineering and a Masters of Biomedical Engineering and is an adviser to health departments, professional organisations, and support associations throughout Australia. He currently works within the speciaslied seating teams at Melbourne Health and Monash Health.

He has been involved in a broad range of rehabilitation and assistive technology areas and has contributed to the field area of assistive technology for over thirty years and with a range of activities including incident investigation, education, research, advice, and clinical support. As part of this work he conducted formal training courses worldwide in patient safety, failures of assistive technology devices and litigation avoidance, and material science relating to the fabrication of artificial limbs, orthopaedic devices, wheelchairs, and other assistive technology. Further, Bill has conducted research in both the development and assessment of assistive technology.

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.

A3: Assessment of Learning Powered mobility use - approach and application

Lisbeth Nilsson
Associated to Lund University, Sweden
Occupational Therapists

Learning objectives

1. Discuss why it is important to apply the full ALP with instrument and facilitating strategies
2. Explain important aspects of how to apply the facilitating strategies
3. Apply the ALP approach to another activity involving tool use learning

Abstract

The learning approach Assessment of Learning Power mobility use (ALP) was developed for power mobility intervention with children and adults with multiple and complex disabilities involving mild to profound cognitive impairment. The ALP tool includes the ALP-instrument for assessment of the eight-phase learning process, and the ALP-facilitating strategies for guidance of approach for each phase and stage in the process. The instrument covers the full range of observational categories from novice to expert performance, thereby providing unique information necessary for assessing actual phase and stage of learning, also in early learners. The facilitating strategies informs selection of intervention approaches offering challenges matching the learners actual phase of tool use understanding. Using the full ALP is emphasized as a pre-requisite for best possible learning.

The ALP approach involves facilitator and learner in a reciprocal process of exploration, mutual interaction and learning. The facilitator explores the needs, characteristics and performance of the learner, as well as how to individually apply the ALP tool; and the learner explores how to interact with their physical and social environment in a new situation, as well as exploring what effects they get from active exploration of using a powered mobility tool. Video recordings will be used to illustrate one child's progress through the process of learning powered mobility use. Important aspects of the facilitating approach and possible outcomes of tool use learning in powered mobility are presented.

The identified learning process has gained recognition as being applicable with other assistive technologies. One example is the adaptation ALP for AAC (Alternative and Augmentative Communication) which will be shown. The generic ALP tool, version 3.0 is presented and exemplified by suggesting what performance is observed in the phases of learning for simple tools such as a spoon for self-feeding and complex tools such as applications for smart phones.

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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 at Lund University, Sweden. She developed the intervention Driving to Learn™ in powered wheelchair for people with profound cognitive disabilities. Her special interests are tool use learning and assessment and facilitation of the learning process. She and her collaborator Durkin, PhD and OT, UK, developed the Assessment of Learning Powered mobility use (ALP).

Her current focus is implementation of the ALP tool in powered mobility intervention and other fields of assistive technology. She is actually collaborating and carrying out research nationally and internationally with OTs, PTs and SLPs; and she has presented and published her findings worldwide since 1998.

A4: Functional Movement Disorder – where do we fit in?

Rachel Maher
Permobil New Zealand, Auckland, New Zealand
Clinical Education Specialist

Learning objectives

Participants will

1. Be able to identify underlying mechanisms and aetiological factors associated with FMD
2. Identify three different presentations of FMD
3. Understand the basic treatment strategies behind FMD, including the role of the MDT

Abstract

This session will present an overview of Functional Movement Disorder, reviewing underlying mechanisms and aetiology, how it is diagnosed and potential treatment strategies, including the role of therapy.

Functional Movement Disorder (FMD) is a complex disorder with a wide range of signs of symptoms affecting a diverse range of individuals. Historically FMD was referred to as 'conversion' disorder, a diagnosis given when diagnostic tests failed to identify an organic cause for a person's symptoms, and with psychiatric / psychological intervention being the standard treatment. This approach has not always resulted in good outcomes, with a level of disability often persisting over time.

A person diagnosed with FMD can present with a significant level of disability, with resulting activity limitations and participation restrictions, hence will often be referred to therapy services for assistance and treatment. Establishing the optimal intervention for this person can be challenging, with the need to balance the potential for recovery in the long term with the need to maintain quality of life and participation in life activities in the short term.

Recent research has highlighted the role of a multi-disciplinary team approach to treatment of FMD, including both physiotherapy and psychological/psychiatric care. Treatment begins with how the diagnosis is communicated to the person, with a person's understanding and acceptance of the diagnosis impacting on their engagement with physiotherapy to help re-learn movement patterns and psychologist / psychiatrist input to address any underlying anxiety, depression or limiting behaviours where appropriate.

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Presenter biography

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 New Zealand 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

B3: Finding the best available evidence -fast: A brief refresher on finding & evaluating research for the busy clinician. (90 min LIVESTREAM INTERACTIVE SESSION)

Fi Graham

Participants will:

- Draft a clinical question that results in focused and accurate search results.
- Identify which (free) database best answers their search question.
- Identify a structured approach to reduce or increase their search results without imposing a bias on search results.

This 90 minute workshop will step participants through articulating clinical question of the research evidence and conducting a simple database search, in ways that maintain objectivity in the search results. We will recap on strategies that avoid searching ways that confirm our biases (e.g, avoiding the 'how do I find evidence that proves what I do is the best approach' type of searching.

Participants will require pen and paper, and would benefit from either having two screens available, or be familiar with how to split their screen (so that the presentation platform and a database platform are simultaneously in view). There will be some small group activities as well as individual tasks. This is not a sit and listen session!

Presenter biography

Fiona Graham is a Senior Lecturer with the University of Otago teaching postgraduate interprofessional rehabilitation. Her research areas include telehealth in rehabilitation, knowledge translation and participation focused interventions, particularly for paediatric populations. She resides in Christchurch, New Zealand.

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.

D4: 3D Printing for Seating and Mobility Dispensaries - Design and Manufacturing Within a Clinic Based Format

Mr. Richard Pasillas, Mr. Jeremy Cantu, Mr. Victor Carvente
CUSHMAKER 3D, Santa Fe Springs, USA
Mr. Richard Pasillas, Owner/President
Mr. Jeremy Cantu, Quality Control & Production Supervisor
Mr. Victor Carvente, 3D Printing Specialist

Learning objectives

Goals: To share knowledge and firsthand experience regarding an emerging technology that will likely dominate all custom fabrication seating and mobility services in the years to come. To guide the audience to an awareness that portions of this technology are open-source, accessible and within a budget for anyone wishing to venture forward.

Objective 1 - Describe the nature and mechanism of 3D printing technologies as applicable to the seating and mobility industry.

Objective 2 - Spell out which tools or assets are most accessible for expediting mass customization.

Objective 3 - Actuate a plan to integrate 3D printing technologies into one's own workplace or ad hoc field clinic. .

Abstract

As clinicians and fabricators the biggest challenge in dispensing complex rehab services is to problem solve and produce one-of-a-kind solutions, in a timely and efficient manner. Typically, we have numerous technical and commercial avenues to address these challenges. Still, we ultimately must question whether the funding source will provide adequate reimbursement for our proposed one-off solution and whether time constraints, staffing limitations or location circumstances are conducive to the drafted proposal.

Over the past few decades, 3D printing has emerged as a highly viable fabrication tool for one-of-a-kind prototypes and functional end products. In fact, 3D printing technologies have proven to reduce fabrication costs to agile minimums: in terms of labor, materials, floor space, tooling and time to delivery. An even bigger advantage to this technology is that, once a solution is dispensed, its digital profile remains a part of an ever growing library of proven solutions. Subsequently, these archived solutions can be: re-dispensed, further embellished, proportioned to new anthropometrics or even repurposed from a more expedient starting point. More importantly, 3D printing technologies also represent the ideal tool for customization on a broader scale of uses, disciplines and departments. (1)(4)

This didactic presentation will detail numerous aspects in which 3D printing technology is used to dispense a wide range of seating, positioning, mobility, ADL and other related components. Numerous examples will be available for audience members to keenly inspect and manipulate first hand.

The goal for this presentation is to spread awareness and technical insight for these easily accessible, open-source and office compatible fabrication tools. The presenters will highlight 3D printed seating/mobility components from workshops and clinics around the world. Additional discussion will include recommendations for what audience members should look for when making purchasing decisions regarding 3D printers, drawing/slicing software and feedstock. (2)(3)(5)

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3) A 3D Printed Seat With A Cellular Structure That Molds to Your Butt 3. https://tinyurl.com/yyb64jbd
4) Computer-aided Product Design With Performance-Tailored Mesostructures 4. https://tinyurl.com/y2xxs4q5
5) 3D Printing and Developing Patient Optimized Rehab. Tools (Port) - A Technological Leap. 5. https://tinyurl.com/y5knuo8j

Presenter biography

Richard Pasillas: cushamsterrick@gmail.com, CUSHMAKER 3D. USA
Owner/President of CUSHMAKER 3D. Has spent 42 years in the complex rehab industry as a custom seating specialist. Mr. Pasillas began investigating 3D printing as a seating & mobility fabrication tool in 2006 and produced a proof of concept wheelchair seat cushion, using SLS technology, in February 2013. Mr. Pasillas has designed 90 3D printed products and has delivered over 3000 of these components to wheelchair dependent consumers since 2014.

Jeremy Cantu: jeremyscottcantu79@gmail.com. CUSHMAKER 3D. USA
Quality Control & Production Supervisor for CUSHMAKER 3D. He is responsible for stress testing and quality assurance standards of all deliverable products. He is also involved in product research & development and currently supervises 6 highly specialized fabrication technicians. Mr. Cantu has 23 years experience in DME and Complex Rehab industry and has previously assisted with Lecture presentations at OSS Australia, 2019 and ISS Vancouver, 2020.

D5: Ready to Roll: wheelchair skill development for therapists

Mrs Meg Whitelaw[1], Ms Ulrike Luebcke[2], Ms Amy Hughes[2], Mrs Michelle Smith[2], Miss Jazz Fox[2]
[1]Mobility Solutions, Auckland, New Zealand.
[2]ADHB, Auckland, New Zealand
Mrs Meg Whitelaw, Occupational Therapist
Ms Ulrike Luebcke, Kaiwhakaora Ngangahau
Ms Amy Hughes, Kaiwhakaora Ngangahau
Mrs Michelle Smith, PT
Miss Jazz Fox, Kaiwhakaora Ngangahau

Learning objectives

1. Have been introduced to the resources, tools and techniques used to facilitate wheelchair skill development amongst therapists.
2. Learn about applying wheelchair skills assessment and training with their clients.
3. Take home practical tips and resources that will facilitate provision of wheelchair skills assessment and training.

Abstract

From identifying learning needs to skill competency, the journey of service improvement can take time. In this session we will be offering participants the opportunity to learn about our Ready to Roll wheelchair skill development for therapists within the Mobility Solutions service.

As clinicians working with complex clients, we recognised the need to up skill our team to achieve more effective wheelchair training outcomes. Our goal was to ensure that there is consistency in our practice through having standardised processes and skill level within our team.

Utilising the initial training and experience from Debbie Wilson and the Seating to Go service and drawing on the Wheelchair Skills Programme (Kirby et el.2018) we have embarked on a service improvement journey. We completed a pre wheelchair skills training confidence survey across the team which identified the need for skill development, standard practice procedures and equipment to facilitate safe and effective training. Understanding our client population and improving on client outcomes has guided us in this project.

We have completed a post wheelchair skills training confidence survey across the team with excellent results and helpful feedback for the continuation of the project. Through measuring baseline confidence and setting specific goals we have been able to increase the awareness, skill and confidence level of the therapy team. These outcomes are expected to support clients to become more effective wheelchair users.

In this session we will cover the essential components of wheelchair skills assessment and training for therapists and how we have applied this within our service. We will share the resources developed throughout this mahi which could be of benefit to other service providers thereby weaving people together, whiria te tangata.

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1) Best, K.l., Routhier, F., & Miller, W.C. (2014). A description of manual wheelchair skills training: current practices in Canadian rehabilitation centres. Retrieved from https://doi.org/10.3109/17483107.2014.907367
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Presenter biography

Meg Whitelaw is an Occupational Therapist with a special interest in working with clients with complex access needs. She studied OT at the University of Cape Town and went on to complete her second honours degree in augmentative and alternative communication at the University of Pretoria. She spent seven years working in low resourced areas in rural South Africa before moving to New Zealand in 2020. She is currently working as a wheelchair and seating therapist at Mobility Solutions wheelchair seating and assessment service based in Auckland, New Zealand.

Michelle Smith completed her undergraduate degree in Physiotherapy at the University of Pretoria in South Africa. Her interests in wheelchairs stemmed from an undergraduate study completed on the prevalence of shoulder pain in manual wheelchair users. She worked as a sports and orthopaedic physiotherapist for six years before moving to New Zealand in 2019 where she started working as a wheelchair and seating therapist. She has recently stepped into the role of Service Lead at Mobility Solutions wheelchair seating and assessment service based in Auckland, New Zealand.

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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qualitative descriptive study. *Nursing Praxis in New Zealand, 34*(1), 20-31.

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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.

E4: Cubro Gold Sponsor's Session:

Seating and Positioning – 24-hour posture care

Helen Murray, NZROT

Garry Stanners

24-hour posture care management is crucial for achieving the best client outcomes. Cubro Customer Solution Advisors - Helen Murray (RNZOT) and Garry Stanners - will outline some core fundamentals about seating and positioning, share recent use cases, and help participants gain a deeper understanding of how to avoid negative outcomes.

Presenter biography:

Helen Murray

With more than 26 years' experience as an Occupational Therapist, before joining Cubro Helen worked as a community OT in Christchurch. Helen is particularly passionate about optimising seating and positioning and is an advocate for 24-hour posture care. After identifying a need for improved education and training to help clients and carers understand the importance of optimising positioning, Helen readily shares her knowledge with other therapists and health professionals. Her hope is that doing this, will help to positively influence both a client's progress and health outcomes.

Helen Murray
RNZOT and Cubro Equipment Advisor
e. helen.murray@cubro.co.nz
p. 021 277 0636

Garry Stanners

Garry is one of our most experienced Equipment Specialists, having led our team in Tāmaki Makaurau, Auckland, for more than 18 years. Garry's strength lies in working together with clients, their whanau and therapists, to find practical solutions to complex situations. Fondly regarded as our mobile showering and commode expert, Garry is passionate about helping those in the industry understand the importance of optimising seating and positioning across all equipment solutions.

Garry Stanners
Cubro Equipment Advisor
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A5: Medix 21 Bronze Sponsor Session:

Paediatric Seating in the Classroom

B5: Rehasense Bronze Sponsor Session:

The challenges of power-addons for wheelchair drivers – Rehasense PAWS solutions

D6: Ottobock Bronze Sponsor Session:

Ottobock The Human Empowerment Company

E5: Melrose Bronze Sponsor Session:

Uniquely You, Made in NZ by Melrose Chairs.

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

A7: Invacare Gold Sponsor's session: The Ripple Effect – Evaluation of Foam Configuration in Temperature and Moisture Control

Anna Sokol
Invacare® Matrx® Clinical Education Specialist for Canada

Abstract

The clinicians usually strive to choose back support products that maximize postural support and stability. Recently, however, we hear more and more questions related to temperature and humidity. Prescribers are looking for ways to address the build-up of heat and moisture between the seating product and the skin. Several clinical conditions involving impaired innervation of sweat glands impact sweating function and contribute to increased core temperatures and sensitivity to heat. To prevent heat strokes, some wheelchair users avoid exposures to warm weather and prefer to stay inside.

For many people with thermoregulation issues, lowering the interface temperatures may create the possibility of enjoying the outdoors during summer months without the added weight of ice packs. The new E2 Back with ripple foam was developed with the goal of addressing microclimate without deviating from the Matrx® no-maintenance product philosophy. In this session, we will compare thermo-performance of slab foam versus ripple foam and will describe our findings from four different scenarios the participants were subjected to. We will share the results of the clinical study that demonstrated reductions of both skin temperatures and sweating with the ripple foam.

Content references:

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Speaker Biography

Anna Sokol is the Invacare® Matrx® Clinical Education Specialist for Canada. Anna is a Registered Nurse with Emergency, SCI Rehabilitation, and Community care experiences. Anna has joined Motion Concepts in 2019 and has been an active contributor to the wheelchair seating product development. Anna is a member of ISO/TC 173/SC1/WG11 Wheelchair Seating Workgroup offering nursing expertise and feedback on the wheelchair manufacturing standards. In 2021, she got CNA-certified in wound care specialty. She provides wheelchair seating education to nurses, physiotherapists, occupational therapists, and providers of assistive technology. She is consulted when teams strive to find the best mobility seating approach or deal with conflicting therapeutic goals. Anna is passionate about creating bridges between the disciplines and specialties and explains how attention to seating may offer the missing piece of the puzzle in client safety. The list of audiences Anna presented to includes CAOT (Canadian Association of Occupational Therapists), National Registry of Rehabilitation Technology Suppliers (NRRTS), TVS UK (Tissue Viability Society), and ISS (International Seating Symposium).

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

B7: Wheelchair and seating solutions for people with multiple sclerosis

Ms Rachel Brown
Enable New Zealand, Christchurch, New Zealand
EMS Advisor - Outreach Wheelchairs and Seating

Learning objectives

1. Identify four key factors to consider when assessing someone with multiple sclerosis (MS) for a wheelchair.
2. Describe the advantages of three power seating functions for people with MS.
3. Name a cushion and back support that are clinically indicated and have functional benefits for someone who has MS.

Abstract

Multiple sclerosis (MS) is a chronic neurodegenerative disease of the central nervous system (1).

Within 15 years of the disease onset 50% of people with MS will have difficulties with mobility (2).

As the disease progresses people with MS transition from walking to using a manual wheelchair (MWC) and generally become power wheelchair (PWC) users; with their seating needs changing along the way. This session will explore the symptoms associated with MS and the wheelchair and seating solutions that maybe prescribed.

The International Classification of Function will be used to identify factors to consider when assessing someone with MS (3).

These include range of motion, spasticity (4, 5 & 6), fatigue (6 & 7), pain (8), cognitive function (9), pressure, sweating, transfers (10), mobility/walking (4, 11 & 12), and falls (9, 13 & 14). Considerations around activities of daily living, participation, environmental and personal factors will be identified.

In New Zealand wheelchair and seating solutions can be funded by the Ministry of Health for people with MS. Statistics have been reviewed relating to the provision of this equipment to identity any prescriptive themes.

The literature around MWC use (2, 15 & 16), considerations when scripting MWCs and why PWCs are prescribed for people with MS will be identified (2 & 16).

The clinical indicators/functional benefits of drive wheel configuration (12), power posterior tilt (2, 12, 16, 17 & 18), anterior tilt (12), recline (12, 17 & 18), elevating lower leg supports (12, 17 & 18), elevate (12 & 19), and power standing (20 & 21) will be discussed.

PWC electronics (12 & 22) and control methods will be mentioned.

The clinical indicators/functional benefits of cushion and back supports will be examined and the importance of reassessing people with MS will be highlighted (23)

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Presenter biography

Rachel Brown graduated as an occupational therapist in 1995. She has worked in a variety of adult and paediatric services within New Zealand and overseas. Most of her practice has been in community settings and included wheelchairs and seating interventions . Rachel has been in her current role with Enable New Zealand since 2010. She is passionate about wheelchairs and seating and has high number of people with MS on her case load. Rachel has published two articles on lying supports, one on back supports and has presented at other symposiums on these topics.

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.

C7: Allied Medical Platinum Sponsor's session:

Supportive Seating: Matching prescription to provision, for all children.

Laura Finney

James Gilmour

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:

Marcus Thompson DFA, DipTch - T12 Paraplegic (17yrs) Omeo user / Design team member,
Educationalist, Industry specialist.
Marcus is the User Experience and Training Manager for Omeo Technology. As a central team member in the development of the Omeo he has developed and established best practice for user assessment and placement, riding, user training, agent and coach training for the device.

D8: How Mental Health is Impacted by Mobility: A look into the evidence

Ms Rainy Wu
Permobil, Shanghai, China
Clinical Education Specialist

Learning objectives

1. Discuss two ways that activities and participation are impacted for an individual after a spinal cord injury.
2. Provide 2 points on the economic and financial impact on participation from both an individual and government funding level.
3. Discuss 3 ways that participation can be negatively impacted by the environment and personal factors.

Abstract

How is participation impacted by a lack of mobility? This presentation will investigate the research behind mental health and its impacts on participation for individuals with a spinal cord injury.

Depression has been investigated as major psychological problem after SCI (Cardozo 2007). One year post injury, 11.5% of individuals with an SCI were reported to have probable major depression which was greatly associated with individuals' health, satisfaction with life and daily role functioning (Bombardier et al. 2004).

This presentation will consider the relationship between the loss of mobility and mental health. We will begin by looking at the ICF framework and dis cussing each interaction between mental health and the health condition, body function and structures, activities, participation, the environment and personal factors. Participation and community reintegration is not based on the health condition alone, but other factors such as environmental barriers, financial issues, and government policies should be considered when creating a plan for the individual's community reintegration.

Both across and within countries we see variations in factors associated with community reintegration. This presentation will end with a look into the current situation in China, focusing on the challenges for community reintegration faced by an individual following an SCI.

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Presenter biography

Rainy Wu joined Permobil China in March 2020, as a clinical education specialist. Originally from Taiwan, she graduated in Physical Therapy and Assistive Technology with a bachelor's degree from National Yang Ming University in 2012. Rainy went into New Taipei City Assistive Technology Centre as a physiotherapist, performing the assessment of assistive devices for government reimbursement. Also, she executed the assessment of barrier-free home environment and provided recommendations of homecare assistive technology for the ageing individuals and individuals with disabilities. At the same duration, she worked for several special education schools, offering physical therapy consultation and applying assistive devices for students who need assistance in schools from The Ministry of Education. Rainy moved to Shanghai in 2018 and worked in a private clinic. As the rehabilitation industry is increasingly thriving within China, her experience and passion in the field of assistive technology led to her career with Permobil.

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.

E7: Sunrise Medical Sponsor's session: Converting Energy into Motion – Quickie Nitrum

Amy Bjornson
Clinical Director – Asia Pacific
Sunrise Medical, Sydney, Australia

Abstract

Wheelchairs have rapidly evolved in recent years. It's now possible to find wheelchairs offering a super light-weight frame with adjustability and unparalleled energy efficiencies. These new ultralightweight wheelchairs are possible due to advances in materials, technology and designs. New ideas in shapes, structures and engineering are producing better, lighter and efficient manual wheelchairs. Come join us to learn about the Quickie Nitrum series

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