Presentation type: 90 mins - Instructional Course Session / Workshop

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

The measurement of postural asymmetry in non-ambulant adults with cerebral palsy
Carlee Holmes

3D Printing for Seating and Mobility Dispensaries - Design and Manufacturing Within a Clinic Based Format
Mr. Richard Pasillas, Mr. Jeremy Cantu

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

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

Assessment of Learning Powered mobility use – approach and application of the ALP.
Lisbeth Nilsson

Exploring power mobility use – a learning approach for children and adults with cognitive impairment. A focus on the early phases of the learning process.
Lisbeth Nilsson

Choosing the Right Mobility Device for Infants and Chlidren
Dr Ginny Paleg

3D Printing for Seating and Mobility Dispensaries - Design and Manufacturing Within a Clinic Based Format
Mr. Richard Pasillas, Mr. Jeremy Cantu

Supporting psychological wellness in children and families with disabilities / medical conditions: reflections from paediatric practice
Nicola McDonald, Helen Thorne

Night time Positioning Intervention: Practical considerations for successful outcomes
Joana Santiago

The Impact of Seating and Positioning on Respiratory System Function

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

Learning objectives

1. The participant will be able to identify at least three rapid, easy-to-use methods to identify changes in respiratory system performance during the seating and mobility evaluation.

2. The participant will be able to state the name of three planes of movement involved in the mechanics of breathing.

3. The participant will be able to 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.

Content references:

1. Frownfelter, D. and M. Massery (2006). Body Mechanics-The Art of Positioning and Moving Patients. Cardiovascular and Pulmonary Physical Therapy Evidence and Practice, ed. 4D. Frownfelter and E. Dean. St Louis, MO, Elsevier Health Sciences: Chapter 42.

2. Massery, M., Breathing and Upright Posture: Simultaneous Needs, in 26th International Seating Symposium, Vancouver, BC. March 11-13, 2010;25-28.

3. Massery M. Multisystem Consequences of Impaired Breathing Mechanics and/or Postural Control. In: Cardiovascular and Pulmonary Physical Therapy Evidence and Practice. 4th ed. Frownfelter D, Dean E. St. Louis, MO: Elsevier Health Sciences; 2006

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.

The measurement of postural asymmetry in Non-ambulant adults with cerebral palsy

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

Learning objectives:

Upon completion of this session participants will be able to:

- Identify factors that impact on postural asymmetry and lifespan care in non-ambulant adults with cerebral palsy
- Understand the use of the Goldsmith Indices of Body Symmetry in the measurement of postural asymmetry of the thoracic cage, pelvis and hips
- Synthesise the theory and available evidence influencing postural asymmetry in non-ambulant adults with cerebral palsy

Background and objectives:

Postural deformities affecting the spine, pelvis and hips are common in non-ambulant adults with cerebral palsy (CP). Despite the relatively static nature of CP, the postural asymmetries in CP are noted to be progressive affecting many domains of health and functioning.

Secondary impairments are common in the more severely affected adults with complex disabilities with the effects of ageing and functional decline occurring earlier in adults with CP than the general population. This may be related to early development of osteoporosis and arthritis, poor nutrition, sedentary lifestyles and resultant sarcopenia and fatigue setting up an ongoing cycle of progression and decline. Hospital admissions due to respiratory disease are more common in adults compared to children with CP potentially related to progressive postural asymmetry of the thoracic cage and contribute to adult mortality.

The inability to change position and the time spent in an asymmetrical posture contribute to the escalating problem in this population with children who are unable to change position in supine reportedly having twice the risk of developing postural asymmetries.

Consistent and reliable clinical measurement of posture and the impact of interventions is challenging, with radiographic studies proving difficult for those with contractures and/or behavioural or movement disorders. The Goldsmith Indices of Body Symmetry (GIofBS) is a simple clinical measurement tool which captures quantitative objective data of rib cage shape, pelvic alignment and hip orientation providing a three-dimensional understanding of the rotary nature of these asymmetries. The GIofBS, using customised measurement apparatus, captures the segmental inter-relationships of the thoracic cage, pelvis and hips, thus providing a clinical approach to aid in problem solving complex seating and bed positioning requirements. Obtaining postural symmetry is also essential for non-ambulant adults to maximise vision, communication and swallow in a seated position, as well as to enable community access and engagement.

Issues related to the progression of postural asymmetry of the thoracic cage, pelvis and hips will be discussed using a case study to highlight the utility of the GIofBS. Objective measurement of postural asymmetry using the GIofBS will be demonstrated.

References

Tosi LL, Maher N, Moore DW, Goldstein M, Aisen ML. Adults with cerebral palsy: a workshop to define the challenges of treating and preventing secondary musculoskeletal and neuromuscular complications in this rapidly growing population. Dev Med Child Neurol. 2009;51(supplement):2-11.

Haak P, Lenski M, Cooley Hidecker M, Li M, Paneth N. Cerebral palsy and aging. Dev Med Child Neurol. 2009;51(04):16-23.

Morgan P, Enticott J, Nikam R, Tracy J. Profile of hospital admissions for adults with cerebral palsy: a retrospective cohort study. Dev Med Child Neurol. 2020.

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Holmes C, Brock K, Morgan P. Postural asymmetry in non-ambulant adults with cerebral palsy: a scoping review. Disabil Rehabil. 2018;41(9):1-10.

Goldsmith E, R. G, R. G, W. M. A technique to measure windswept deformity. Physiotherapy. 1992;78(4):235-242.

Holmes C, Fredrickson E, Brock K, Morgan P. The intra and inter-rater reliability of the Goldsmith Indices of Body Symmetry in non-ambulant adults with cerebral palsy. Disabil Rehabil. 2020.

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Ryan JM, Peterson MD, Ryan N, Smith KJ, O'Connell NE, Liverani S, et al. Mortality due to cardiovascular disease, respiratory disease, and cancer in adults with cerebral palsy. Developmental Medicine & Child Neurology. 2019;0(0).

Rodby-Bousquet E, Czuba T, Hagglund G, Westbom L. Postural asymmetries in young adults with cerebral palsy. Developmental Medicine & Child Neurology. 2013;55(11):1009-15.

Casey J, Rosenblad A, Rodby-Bousquet E. Postural asymmetries, pain, and ability to change position of children with cerebral palsy in sitting and supine: a cross-sectional study. Disability and Rehabilitation. 2020:1-9.

Holmes C, Kim Brock & Prue Morgan (2021): The relationship between radiographic and anthropomorphic measurements of deformity of the thorax, hips and pelvis in adults with cerebral palsy. New Zealand Journal of Physiotherapy, In Press, DOI: 10.15619/NZJP/49.1.03

Peterson MD, Gordon PM, Hurvitz EA. Chronic disease risk among adults with cerebral palsy: the role of premature sarcopoenia, obesity and sedentary behaviour. Obesity Reviews 2013;14:171-82.

Presenter biography

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

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

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

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)

Content references:

The Ten Principles Of 3D Printing 1.https://bigthink.com/experts-corner/the-ten-principles-of-3d-printing

3D Printing Introduction for Occupational Therapists and Students 2. https://tinyurl.com/yy47vgu8

A 3D Printed Seat With A Cellular Structure That Molds to Your Butt 3. https://tinyurl.com/yyb64jbd

Computer-aided Product Design With Performance-Tailored Mesostructures 4. https://tinyurl.com/y2xxs4q5

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.

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

Jean Minkel
Independence Care System, Brooklyn, NY, USA
SVP

Learning objectives

By attending this workshop participants will be able to:

1. Define at least 3 different positions of the pelvis that a person may assume while sitting up against gravity.

2. Relate the position of the pelvis to the most common resulting spine/trunk position

3. Identify the position of the head, depending on the position of the pelvis and the trunk

Abstract

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

Content references:

Minkel, J. "Seating and Mobility Evaluations for Persons with Long-Term Disabilities" in Lange, M. and Minkel, J (2018) *Seating and Wheeled Mobility: A clinical Resource Guide.* Slack, Inc.

Sonenblum, Sharon E, Stephen H Sprigle, and James S Martin. “Everyday Sitting Behavior of Full-Time Wheelchair Users.” Journal of rehabilitation research and development 53.5 (2016): 585–598. Web.

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Presenter biography

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

Jean has been an invited keynote speaker at conferences in the US, Canada, Australia, New Zealand and Japan. She is a published author, including many peer reviewed journal articles and most recently, she co-edited, with Michelle Lange, the newly published textbook, Seating and Wheeled Mobility – a Clinical Resource Guide. The A.T. community has recognized Jean for her contributions by awarding to her, the RESNA Fellow award in 1995 and the Sam McFarland Mentor Award in 2012.

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

Jean Minkel
Independence Care System, Brooklyn, NY, USA
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

Presentation description

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

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

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

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

Content references:

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

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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.

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Presenter biograpy

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!

Assessment of Learning Powered mobility use - approach and application

Lisbeth Nilsson
Associated to Lund University, Sweden
Occupational Therapists

Learning objectives

- Discuss why it is important to apply the full ALP with instrument and facilitating strategies
- Explain important aspects of how to apply the facilitating strategies
- 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.

References:

1. Nilsson, L. Driving to Learn. The process of growing consciousness of tool use – a grounded theory of de-plateauing [dissertation]. [Lund, Sweden]: University of Lund; 2007. Available at: https://lup.lub.lu.se/search/publication/548098

2. Nilsson L. Powered mobility for people with profound cognitive disabilities leads to developing occupational performance. British Journal of Occupational Therapy. 2019;82(11)655–657.

3. Nilsson L., & Durkin J. Assessment of learning powered mobility use—Applying grounded theory to occupational performance. Journal of Rehabilitation Research and Development. 2014;51(6):963–74.

4. Nilsson L., & Durkin J. Powered mobility intervention: understanding the position of tool use learning as part of implementing the ALP tool. Disability and Rehabilitation: Assistive Technology. 2017;12(7):730-739.

5. Svensson, E. & Nilsson, L. Inter-rater reliability of the assessment of learning powered mobility use, version 2.0, when applied with children and adults engaged in Driving to Learn in a powered wheelchair. Australian Occupational Therapy Journal. 2021; 68(2): 115-123.

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.

Exploring power mobility use – a learning approach for children and adults with cognitive impairment

Lisbeth Nilsson
Associated to Lund University, Sweden
Occupational Therapists

Learning objectives:

- Discuss why it is a powerful activity to explore power mobility use
- Explain possible benefits of exploring power mobility use ahead of ability to drive goal-directed
- Motivate application of the ALP tool for assessment and facilitation of tool use learning

Abstract

If children and adults with multiple and complex disabilities involving cognitive impairment, are given opportunities to explore power mobility experiences, their consciousness of tool use can grow. Power mobility devices are powerful mediators of experiences promoting development and learning. Exploring possible effects of acting on joystick or switch/es operating the device, offers the user a variety of effects, sensations and learning experiences impacting body and relations to environment.

The ALP tool originates from research projects carried out by Nilsson (Driving to Learn) and Durkin (Moving forward). Both projects focused on gaining understanding of the learning process and how to facilitate tool use learning through power mobility experience. The ALP tool includes the ALP-instrument for assessment of the eight phases and three stages in the learning process, and the ALP-facilitating strategies guides the approach for each phase and stage in the process. The ALP is process-based as it connects assessment of a user's actual phase in the tool use learning process with appropriate facilitating strategies for each phase and stage. Assessment and facilitation is carried out in real context and set up for each individual's abilities, needs and possible motives. Assessment is based on observation and interpretation of learner performance in the moment and facilitation is aiming at providing the just right challenge at each moment of an intervention situation.

Elucidating possible learning benefits in earlier phases of the learning process can assist clinicians who wish to use powered mobility as a learning experience. The learning approach Assessment of Learning Powered mobility use supports recognition of minor changes in performance indicating small successes and steps forward ahead of reaching goal-directed driving. It also guides how to facilitate this progress at each of the phases in the process. Using the full ALP is emphasized as a pre-requisite for successful outcome.

References:

1. Nilsson, L. Driving to Learn. The process of growing consciousness of tool use – a grounded theory of de-plateauing [dissertation]. [Lund, Sweden]: University of Lund; 2007. Available at: https://lup.lub.lu.se/search/publication/548098

2. Nilsson L. Powered mobility for people with profound cognitive disabilities leads to developing occupational performance. British Journal of Occupational Therapy. 2019;82(11)655–657.

3. Durkin J. Developing powered mobility with children who have multiple and complex disabilities: Moving forward [dissertation]. [Brighton, UK]: University of Brighton; 2006.

4. Nilsson L., & Durkin J. Assessment of learning powered mobility use—Applying grounded theory to occupational performance. Journal of Rehabilitation Research and Development. 2014;51(6):963–74.

5. Nilsson L., & Durkin J. Powered mobility intervention: understanding the position of tool use learning as part of implementing the ALP tool. Disability and Rehabilitation: Assistive Technology. 2017;12(7):730-739.

6. Svensson, E. & Nilsson, L. Inter-rater reliability of the assessment of learning powered mobility use, version 2.0, when applied with children and adults engaged in Driving to Learn in a powered wheelchair. Australian Occupational Therapy Journal. 2021; 68(2): 115-123.

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.

Choosing the Right Mobility Device for Infants and Chlidren

Dr Ginny Paleg
Montgomery County Infantsa nd 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.

Content references:

Altizer W, Noritz G, Paleg G. Use of a dynamic gait trainer for a child with thoracic level spinal cord injury. BMJ Case Rep. 2017 Oct 10;2017.

Rodby-Bousquet E, Paleg G, Casey J, Wizert A, Livingstone R. Physical risk factors influencing wheeled mobility in children with cerebral palsy: a cross-sectional study. BMC Pediatr. 2016 Oct 10;16(1):165.

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Paleg, G and Livingstone R. Evidence-Informed Clinical Perspectives on Selection of Gait Trainer Features for Children with Cerebral Palsy. International Journal of Therapy and Rehabilitation. 2016 23 (9) .

Paleg G, Huang M, Vasquez Gabela SC, Sprigle S, Livingstone R. Comparison of the Inertial Properties and Forces Required to Initiate Movement for Three Gait Trainers. Assist Technol. 2016 Fall;28(3):137-43

Paleg G and Livingstone R. Outcomes of gait trainer use in home and school settings for children with motor impairments: A systematic review. Clin Rehabil. 2015 Jan 30.

Livingstone, R and Paleg, G. Practice considerations for the introduction and use of power mobility for children. Dev Med Child Neurol. 2013 Sep 3.

Casey J, Paleg, G, and Livingstone, R. (2013) Facilitating child participation through power mobility. British Journal of Occupational Therapy, 76 (3). pp. 157-159.

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.

Supporting psychological wellness in children and families with disabilities / medical conditions: reflections from paediatric practice

Nicola McDonald, Helen Thorne
CDHB, Christchurch, New Zealand
Nicola McDonald, Child Health Psychologist
Helen Thorne, Senior Physiotherapist and Physiotherapy Team Leader, Canterbury Child Development Service

Learning objectives

Participants will strengthen their understanding of the psychological and emotional challenges children with disabilities / chronic medical conditions may experience.

Participants will strengthen their understanding of the family experiences of disability/chronic medical conditions, especially at important points of the care journey.

Participants will learn practical ways to support children and families in this sphere and when to seek extra support around psychological and emotional wellbeing.

Abstract

Children with disabilities / chronic medical conditions and their whanau face a unique set of challenges. In this presentation common psychological and emotional difficulties experienced by this population will be discussed. We will explore the impact these can have on children and their whanau, and the complex interactions between psychological and physical factors (including pain). We will talk about issues arising at different life stages including when children transition into wheelchairs, trial new equipment or experience progression of their condition. The concepts of chronic sorrow and grief will be used to explore family journeys.

Together we will reflect on some case examples and discuss practical strategies for supporting the psychological wellbeing of children and families we are working with. Indicators for seeking further support for families will also be outlined.

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Yehene, A. Ben-Valid, S., Golan, S., Bar-Nadav, O. & Landa, J. (2019): Factors associated with parental grief reaction following pediatric acquired brain injury, Neuropsychological Rehabilitation.

Young S, Shakespeare-Finch J, & Obst P (2020) Raising a child with a disability: a one-year qualitative investigation of parent distress and personal growth. Disability & Society 35 (4), 629-653

Presenter biography

Nicola has been a Child and Family Psychologist in Christchurch for nearly ten years, the last five of which have been in Christchurch Hospital's paediatric department as a Child Health Psychologist. She primarily supports children and young people experiencing psychological difficulties which link to their medical conditions/disabilities. She provides assessment and individual, family and group intervention. Nicola has special interests in anxiety and pain and works closely with colleagues from the Child Development Service. She holds a Masters of Child and Family Psychology (First Class Hons) and lectures on Canterbury University's Child and Family Psychology Programme.

Helen is physiotherapy Team Leader at the Child Development Service, CDHB. She has 20 years' experience working with children and adults with health conditions and disabilities, and has a Post-graduate Diploma in Rehabilitation. Helen provides therapy, equipment and seating solutions for children/young people newborn-16 years of age, working within an interdisciplinary team. Helen supports staff within CDHB Child Development Service as well as West Coast DHB and local adult services, providing supervision, teaching and advice, especially in the areas of physiotherapy management, complex seating, and lying supports. She is a member of the Enable NZ panel reviewing clinician's case studies for accreditation in Wheeled Mobility and Postural Management.

Helen and Nicola are both passionate about working with children/young people and their families, and supporting them to achieve their goals.

Night time Positioning Intervention: Practical considerations for successful outcomes

Joana Santiago
Medifab, Sydney, Australia
Clinical Education

Learning objectives

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

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

Abstract

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

Evidence-based research suggests that preferred postures adopted in lying are greatly associated with postural deformities observed in sitting. With that in mind, with this interactive workshop we will run through the biomechanical principles of lying as a crucial step to understand client's postural deviations; we will support clinicians with a systematic assessment process and will provide strategies and resources for a successful intervention and implementation plan. A practical and useful toll will be provided to assist with data collection.

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

Content references:

1. Ágústsson, A., Sveinsson, T., Pope, P., Rodby-Bousquet, E. (2018). *Preferred posture in lying and its association with scoliosis and windswept hips in adults with cerebral palsy*. Disability and Rehabilitation. 41: 3198-3202

2. Casey, J., Rosenblad, A., Rodby-Bousquet, E. (2020). *Postural asymmetries, pain, and ability to change position of children with cerebral palsy in sitting and supine: a cross-sectional study.* Disability and Rehabilitation. 1-5

3. Hill, S., Goldsmith, J. (2010*). Biomechanics and Prevention of Body Shape Distortion.* The Tizard Learning Disability Review. 15(2):15-29.

4. Holmes, C., Brock, L., Morgan, P. (2019). *Postural asymmetry in non-ambulant adults with cerebral palsy: a scoping review.* P. Disabil Rehabil. 41(9): 1079-1088.

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6. Sato, H. (2020). *Postural deformity in children with cerebral palsy: Why it occurs and how is it managed*. Phys Ther Res. 23(1): 8-14

7. Stephens, M., Bartley, C., Priestly, C. (2018). *Evaluation of Night Time Therapeutic Positioning for Adults with Complex Postural Problems*. Salford: University of Salford, 1-61

Presenter biography

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

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