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CSHT 2024 Conference Program

CHELSEA HOTEL, TORONTO, ON, CANADA
APRIL 26-27, 2024








President Welcome to the 2024 CSHT Conference

Jean-François Ouellet, CSHT President

Welcome honoured speakers, scientific presenters, exhibitors and colleagues to the very first in-person conference of our executive term. CSHT is glad to be back in Toronto and I would like to thank the conference committee for putting this amazing programme together. The Conference Program was led by: Marianne Williams, Conference Chair, Juliana Larocerie, Program Chair, Tara Packham and Andrea Hebert as Scientific Chairs. A great amount of volunteer work goes into planning this event, so I would like to thank you all for your involvement and hard work.

This conference marks the end of the CSHT Executive term, and I have been so privileged to work with this amazing team: Amanda, Sarah, France and Joey.

A final thanks to our IFSHT representative Susan Hannah.

Enjoy the conference, have fun, and connect with colleagues from across Canada!

Juliana Larocerie, Program Chair

Bienvenue à nos conférenciers, présentateurs scientifiques, exposants et collègues à la toute première conférence en présentiel depuis notre venue comme comité exécutif. Nous sommes contents d'être de retour à Toronto et j'aimerais remercier le comité de la conférence d'avoir mis en place un programme aussi extraordinaire. Le comité d'organisation pour cette conférence a été mené par : Marianna Williams comme présidente, Juliana Larocerie en charge du programme, Tara Packham et Andrea Hebert comme comité scientifique. Cet événement serait impossible sans la participation de nombreux bénévoles et nous voulons prendre le temps de vous remercier pour votre implication.

Andrea Hebert, Scientific Co-Chair

Cette conférence marque la fin de notre mandat en tant que comité exécutif. Je me sens privilégié d'avoir travaillé avec cette merveilleuse équipe : Amanda, Sarah, France et Joey.

Un dernier remerciement à notre représentante IFSHT Susan Hannah.

Amusez-vous, profitez des présentations et prenez le temps d'échanger avec des collègues qui viennent de partout à travers le Canada.

Jean-François Ouellet, CSHT President

Tara Packham, Scientific Co-Chair

France Archambault, CSHT Treasurer

Amanda Higgins, CSHT Secretary

Sarah Hobbs, CSHT Communications Director

Joey Pipicelli, CSHT Vice-president

Marianne Williams, Conference Chair

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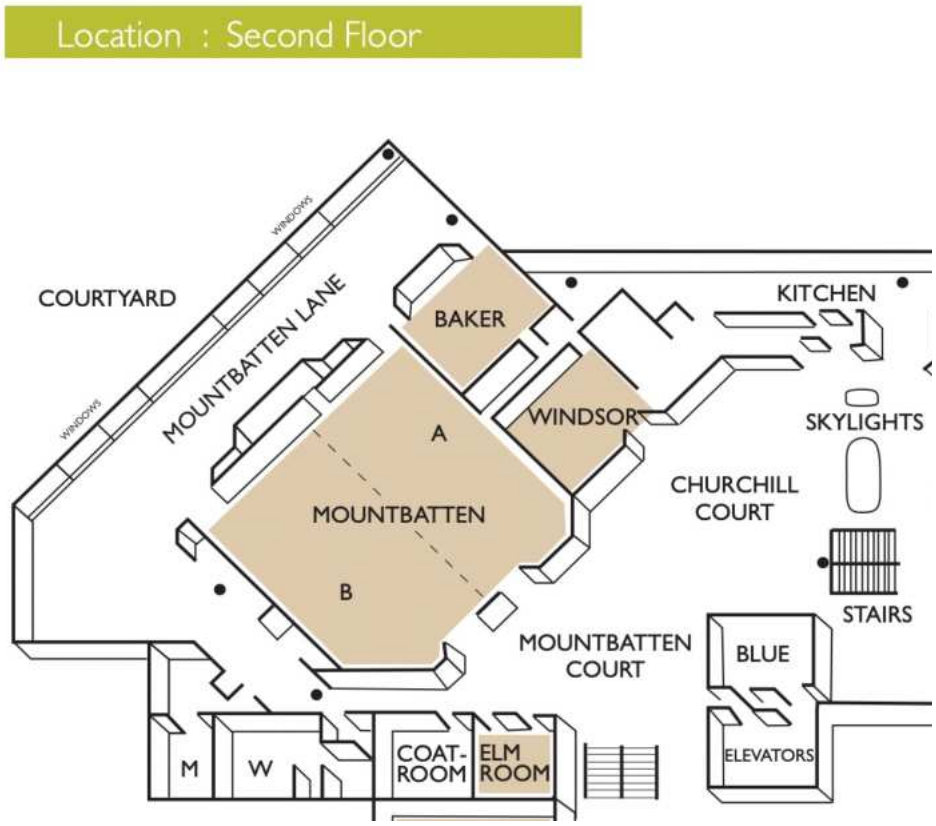

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Program:

Friday, April 26

8:00 AM	Mountbatten Room	Welcome by CSHT President **Jean-François Ouellet** and CSHT Conference Committee	
8:15 AM		**Joey Pipicelli:** Unstable Hand Fractures	
8:45 AM		**Shrikant Chinchalkar**: Intra-articular Hand Fractures	
9:15 AM		Panel Discussion moderated by **Susan Hannah**: Managing Stiffness Post Hand Fractures with **Shrikant Chinchalkar**, **Jean-François Ouellet**, **Tara Packham**, **Joey Pipicelli** and **Sarah Hobbs**	
10:00 AM	Mountbatten Lane	Poster Viewing, Exhibitors and Refreshments	
10:30 AM	Concurrent Sessions	**Andrea Chan**: Pediatric Hand Surgery (Mountbatten A)	**Allison Blain**: Understanding Pain Medications for the Hand Therapist (Mountbatten B)
11:00 AM		**Emily S. Ho**: Hands Together - Therapeutic Management of the Complex Paediatric Hand (Mountbatten A)	**Tara Packham**: Pain Neuroscience Education (Mountbatten B)
11:30 AM		**Vivian Dim:** Wound Management for Hand Therapists (Mountbatten A)	**Joey Pipicelli**: Treating Elbow Stiffness (Mountbatten B)
12:15 AM	Mountbatten Lane	Lunch	
1:00 PM	Mountbatten Room	**Shrikant Chinchalkar:** What's New in Zone 5-7? Preventing Complications in Extensor Tendon Rehabilitation	

Vancouver Island, BC by CSHT Member Janine Slater

1:30 PM		**<u>Podium Presentations</u>:** Upper limb participation after brachial plexus birth injury from childhood to young adulthood: A qualitative study by **Laura Ireland**, **Shelby Rabb**, **Lexi Davidson**, and **Emily S. Ho** An exploratory study on factors associated with participation in adults with brachial plexus birth injury by **Lexi Davidson**, **Kristen M. Davidge**, **Samantha Anthony**, **Christine Novak**, **Andrea Chan**, and **Emily S. Ho** A flexible custom 3D-printed finger stabilization orthosis using TPU to manage lateral band subluxation for a bagpipe musician in a virtual setting with **Stella Wang** How is range of motion of the fingers measured in hand therapy practice? A survey study with **Zeal Kadakia**, **Sandra Vanderkaay**, **Ayse Kuspinar** and **Tara Packham** **<u>Rapid-fire Sessions</u>**: Hand & upper limb evaluations: A critical analysis of their use with indigenous clients with **Mallory Landry**, **Lauren Stathakis**, and **Karen Landry** Definition and measurements of functional first web space: A scoping review with **Kate K. Kim**, **Farah Bacchus-Misir**, and **Emily S. Ho** Dog leashes - Friend or foe with **Lynda O'Callaghan** and **Antoinette Krakovsky** Pattern recognition myoelectric prothesis fitting on transradial amputation: A case study with **Éliane Archambault** and **Maude Mainville** A novel design for dynamic-assist orthosis for shoulder external rotation with **Juliana Larocerie**, **Kristen MacDonald**, and **Samantha Lau**
2:30 PM	Mountbatten Lane	Poster Viewing, Exhibitors and Refreshments
3:00 PM	Mountbatten Room	**Herb von Schroeder:** Wrist Instability - Surgical Mangement
3:30 PM		**Ann Porretto-Loehrke:** Conservative Management of Wrist Instability
4:30 PM		Closing Remarks by CSHT President **Jean-François Ouellet** and CSHT Conference Committee
4:45 PM	Mountbatten Room	CSHT Annual General Meeting
5:30 - 7:30 PM	Bistro B33	CSHT Wine and Cheese

Scarborough, ON by CSHT Member Amy Vissing

St. Martin's, NB by CSHT Member Amanda Higgins

Program:

Saturday, April 27

8:00 AM	Concurrent Sessions	Welcome by CSHT President **Jean-François Ouellet** and CSHT Conference Committee		
8:15 AM		**Juliana Larocerie**: Rehabilitation Post Nerve Transfers (Mountbatten A)	**Jean-François Ouellet** and **Barbara Shankland:** Innovations in Hand Therapy Practice (Mountbatten B)	
9:00 AM		**Tracy Elliott**: Scapular Dyskinesia - What do Hand Therapists Need to Know? (Mountbatten A)	**Julie Entwistle:** Coaching and Private Practice (Mountbatten B)	
9:45 AM	Mountbatten Lane	Poster Viewing, Exhibitors and Refreshments		
10:15 AM	Mountbatten Room	**Joy MacDermid**: Patient-Rated Outcome Measures		
10:45 AM		**Christine Novak:** Sensory Evaluation - Choosing the Right Assessment Measures		
11:15 AM		**Pat McKee:** Therapeutic Management of the Painful Thumb		
11:45 AM		**Jonathan Persitz:** Current Concepts and Minimally Invasive Treatment Options for 1st CMC OA		
12:15 AM	Mountbatten Lane	Lunch		
1:00 PM	Mountbatten Room	**Ann Porretto-Loehrke:** Manual Therapy for Addressing Wrist Stiffness		
1:30 PM		**Jean Paul Brutus:** Compressive Neuropathies		
2:00 PM		Award Presentation by the CSHT Executive		
2:30 PM	Mountbatten Lane	Poster Viewing, Exhibitors and Refreshments		
3:00 PM - 4:30 PM	Break-Out Sessions	**Ann Porretto-Loehrke** and **Jean-François Ouellet**: Clinical Examination of the Wrist and Stability Testing (Mountbatten A)	**Tracy Elliott:** Shoulder Examination (Mountbatten B)	**Tara Packham** and **Andrea Hebert:** Stimulation Pod and Photobiomodulation: Implications for Hand Therapy (Baker Room)

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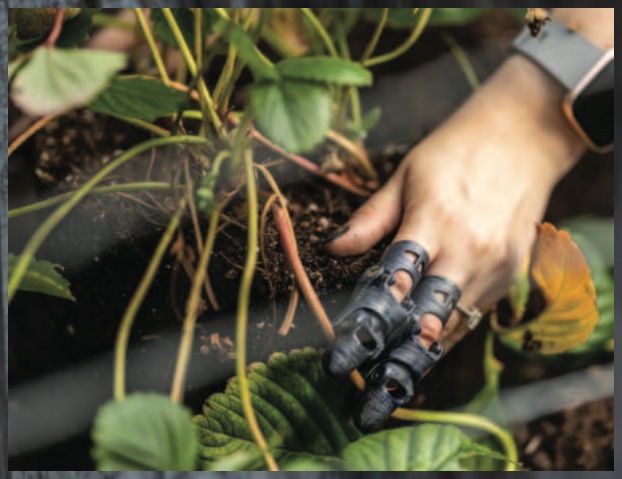

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Featured Speakers:

Keynote Speaker: Ann Porretto-Loehrke

Ann Porretto-Loehrke

Ann Porretto-Loehrke is a skilled clinician with a passion for teaching and clinical treatment of upper extremity disorders. She provides practical information that can be used immediately in the clinic. Ann has been practicing for 30 years and teaching continuing education courses for the past 20. She serves as the Clinical Development Coordinator at the Hand to Shoulder Center in Appleton, Wisconsin. Ann is a Certified Hand Therapist (CHT) and a Certified Orthopedic Manual Therapist (COMT) for treatment of the upper quadrant through the International Academy of Orthopedic Medicine (IAOM). Ann received a bachelor's degree in physical therapy from Marquette University in 1994 and completed a post-professional Doctorate in Physical Therapy (DPT) degree from Drexel University with a specialty in hand and upper quarter rehabilitation in 2007. She is also certified in dry needling through Myopain Seminars, as a Certified Myofascial Trigger Point Therapist (CMTPT). Ann is a lead instructor who co-developed the Hand & Upper Extremity Track through IAOM, a set of 6 manual therapy courses designed specifically for hand and upper extremity specialists. She co-authored a chapter in Rehabilitation of the Hand & Upper Extremity on nerve compression syndromes of the elbow and forearm, as well as published two peer-reviewed articles entitled "Clinical Manual Assessment of the Wrist" and "Taping Techniques for the Wrist" in the 2016 Journal of Hand Therapy's special edition of the wrist. Ann has presented at numerous conferences including Canadian Society of Hand Therapist Annual Conferences in 2018 and 2022, American Society of Hand Therapists (ASHT) annual conferences, Philadelphia meeting, TRIA Hand Conference, and Teton Hand Conferences. She also teaches online courses for MedBridge education and fostered the development of MedBridge's CHT Prep program.

Jean Paul Brutus

Jean Paul Brutus

Dr. Brutus was born in Belgium and graduated from medical school in Brussels in 1995. He developed a passion for hand surgery and completed his residency in plastic and reconstructive surgery in Brussels and also trained for a year at the city's most prestigious private hand surgery centre. He then completed a fellowship in hand and upper extremity surgery at SUNY Upstate Medical University in Syracuse, New York, as well as a research fellowship at the Institute for Human Performance, which is housed at the same school. Dr. Brutus is certified by the Belgian Board of Plastic Surgery and is also fully licensed by the Collège des médecins du Québec. Dr. Brutus moved to Montreal in 2005 when he accepted a position as a Professor of Plastic Surgery at Centre hospitalier de l'Université de Montréal, where he taught and practised hand surgery until 2010. During that time, he also practised at Hôpital de la Cité-de-la-Santé in Laval. Since 2010, he practices exclusively at his private practice in Montreal.

Andrea Chan

Andrea Chan

Dr. Andrea Chan completed a Masters of Arts (Anthropology & Forensic Science) at McMaster before attending medical school and orthopaedic surgery residency at the University of Toronto. She has completed the Adult Upper Extremity and Hand Fellowship at Western University Roth|McFarlane Hand and Upper Limb Centre (RM-HULC) and a Paediatric Upper Extremity and Hand Fellowship at Cincinnati Children's Hospital Medical Center (CCHMC). Her clinical practice is currently split between the UHN TWH Hand Program and Toronto's SickKids.

Shrikant J. Chinchalkar

Shrikant J. Chinchalkar

Shrikant J. Chinchalkar, OTR, CHT, worked as a Senior hand therapist at the Roth-McFarlane Hand & Upper Limb Centre, St. Joseph's Health Centre in London, Ontario, Canada for 26 years. He has over 48 years of clinical experience in treating upper extremity conditions, nearly 40 years of teaching and 30 years of research experience. He designed and developed Hand Therapy programs at four major teaching centres in Canada including Roth-McFarlane Hand & Upper Limb Centre in London, Ontario. In addition, he designed Brachial Plexus and Peripheral Nerve Injury, Elbow, Wrist and Hand Rehabilitation programs at these hospitals in Canada. In addition, he designed the most structured "Hand Therapy Fellowship program" for training of therapists at this centre. He worked as a guest lecturer at University of Manitoba, University of Toronto and Western University in Canada. He conducted many instructional courses on upper extremity rehabilitation in over 28 countries in the world and has won many awards for his presentations. He has over 300 presentations to his credit. He was awarded the "Dr. Paul Brand Award of Excellence" by the American Society of Hand Therapists (ASHT), "Award of Leadership" by the Canadian Association of Occupational Therapists (CAOT), "Award of Excellence" by the Sisters of St. Joseph's Hospital, "Best Educator" by the Western University, "Most Outstanding Prestigious Alumni" by the Nagpur University in India, the "Lifetime Membership Award" by the Canadian Society of Hand Therapists (CSHT) and an award of "Excellence in Teaching and Coaching" by the administration of the St. Joseph's Hospital. In 2017 the Hand Therapy fellowship program was named after him. It is now called as "Chinchalkar Hand Therapy Fellowship Program" at the Roth-McFarlane Hand & Upper Limb Center. In 2019 he received a "Life Time Achievement Award" by the International Federation of Society of Hand Therapists (IFSHT) in Berlin. Recently in 2019 he was chosen as an Honorary Advisor to the Asia Pacific Wrist Association in Seoul, Korea during their annual conference. Shrikant is also an "Honorary Advisor to Society of Hand Therapy, India". He is a member of "Education Committee of IFSHT". Shrikant has authored six book chapters and has published more than 40 papers and 15 abstracts in numerous peer-reviewed journals related to Upper Extremity Surgery and Therapy.

Tracy Elliott

Tracy Elliott

Tracy Elliott has worked as a shoulder physiotherapist at the Roth McFarlane Hand & Upper Limb Centre for the past 18 years. She specializes solely in shoulder assessment and treatment in collaboration with the Roth McFarlane Hand & Upper Limb Centre shoulder surgeons. She has presented at conferences in Canada and a webinar in the US; focused on shoulder assessment and rehabilitation. She has organized shoulder conferences and presented at the hand therapy symposiums at the Roth McFarlane Hand & Upper Limb Centre. She is currently working as a lecturer at Western University

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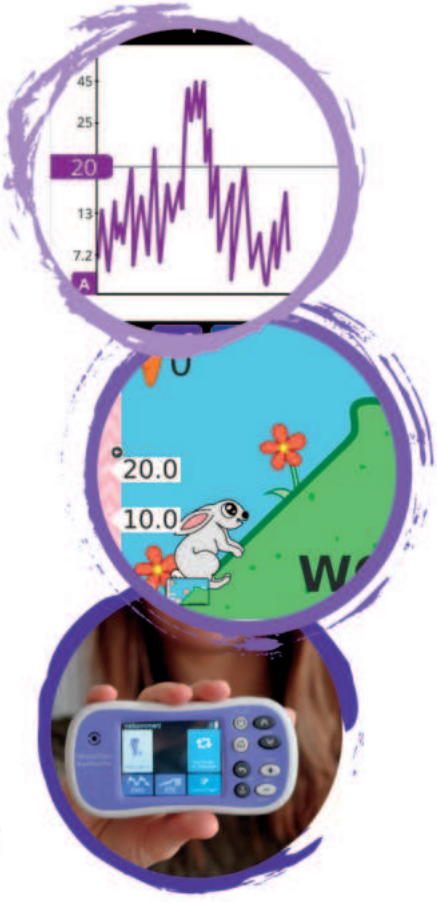

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Julie Entwistle

Julie Entwistle

Julie Entwistle is an occupational therapist who ran a successful private practice for over 15 years before selling this in 2019. Julie now uses her experience in business and MBA education to help other healthcare professionals as a business and leadership coach. As a coach, Julie empowers professionals to build their business confidence and competence so they can run, grow, and develop legacy practices that are focused and optimally successful. Julie knows that when professional service businesses do better, their clients and families also benefit.

Susan Hannah

Susan Hannah

Susan Hannah graduated with a BSc (OT) and a Master of Education from the University of Toronto. She has been a Certified Hand Therapist since 1995 and was Vice-President of the Canadian Society of Hand Therapists from 2017-2021. She is presently the Canadian Delegate to the International Federation of Societies for Hand Therapy. Susan's clinical practice has been in hand and upper extremity rehabilitation, rheumatology, the NICU, and work disability in both hospital and private practice environments. She has presented at national and international forums in addition to volunteering in clinical education development in Haiti and Ukraine. Her most recent research and educational endeavours focuses on the importance of addressing both physical and psychosocial issues after injury when facilitating a return to meaningful occupations.

Emily S. Ho

Emily S. Ho

Dr. Emily S. Ho is an Assistant Professor in the Department of Occupational Science and Occupational Therapy at the University of Toronto and an advanced practice occupational therapist in the Division of Plastic and Reconstructive Surgery at The Hospital for Sick Children, Toronto, Canada. She has over twenty years of clinical and research experience in paediatric hand and upper limb rehabilitation. Dr. Ho is known internationally as a leader in assessment and evaluation of children and youth with brachial plexus birth injuries and congenital hand and upper limb differences. As a clinician-investigator, her research focuses on understanding, measuring, and evaluating participation and well-being in children and youth with upper limb conditions. She strives to place the voice of youth with upper limb conditions at the centre of her research, partnering with them through research initiatives that focus on physical and mental well-being to empower independent living.

Juliana Larocerie

Juliana Larocerie

Juliana Larocerie is a certified hand therapist at the Roth-McFarlane Hand & Upper Limb Center in London, Ontario. Juliana graduated in 2003 with a bachelor in occupational therapy from the Federal University of Pernambuco, Brazil, and completed a master's degree in Rehabilitation Sciences from Queen's University, kingston, in 2006. She has contributed to teaching clinical conditions in the hand and upper limb rehabilitation

in the Queen's and Western Universities Occupational Therapy Programs, and instructional courses at various Hand Surgery and Therapy meetings, including ASHT, IFSHT, CSHT, EFSHT and the Latin American Brachial Plexus Congress. She is also a co-instructor in the Chinchalkar Hand Therapy Fellowship Program at the Roth McFarlane Hand and Upper Limb Centre. She has authored peer-reviewed papers and a book chapter, and has received Awards for Excellence in Research at Queen's University, and three-time award winner of the Best Scientific Session at CSHT Annual Conferences.

Joy MacDermid

Joy MacDermid

Dr. Joy MacDermid is a clinical epidemiologist, physiotherapist, hand therapist and Distinguished Professor of Physical Therapy at Western University. She holds a Canada Research Chair in Musculoskeletal Outcomes and Knowledge Translation and The Dr. James Roth Chair in Musculoskeletal Measurement and Knowledge Translation. She is a Fellow of the Canadian Academy of Health Sciences and The Royal Society of Canada. Dr. MacDermid is also the Co-director of the Clinical Research Lab at The Hand and Upper Limb Centre in London, Ontario. She pioneered patient-reported outcome measures for the hand and upper extremity that are widely used to assess functional outcomes. Her research focuses on upper extremity function, musculoskeletal health, design and evaluation of surgical and rehab interventions/ programs, public safety personnel health, work injury, implementation science, and the impact of sex and gender on health.

Pat McKee

Pat McKee

Pat McKee, Associate Professor Emeritus, Department of Occupational Science and Occupational Therapy at the University of Toronto, has taught anatomy, hand therapy, biomechanics, orthotics (splinting), ergonomics and occupational therapy to students and therapists worldwide for 40+ years. Pat co-authored the textbook "Orthotics in Rehabilitation: Splinting the Hand and Body", as well as numerous peer-reviewed articles and book chapters. She co-developed the *Anatomy Glove Learning System,* now used by medical and allied health professionals and students in 40 countries. http://www.anatomysoftwear.com. She was honoured with the Lifetime Achievement Award from IFSHT in 2019. Among her many international invited presentations, most recently, she was the keynote speaker for European Federations of Societies of Hand Therapy, Rimini Italy, May 2023.

Christine Novak

Christine Novak

Christine Novak, PT, PhD, is an Associate Professor in the Division of Plastic, Reconstructive & Aesthetic Surgery at the University of Toronto. Her research has focused on clinical outcomes, assessment of patients with nerve and musculoskeletal disorders and factors related to upper extremity disability. She has over 170 peer review publications and numerous book chapters and national and international presentations. Dr. Novak is past-President of the American Society of Peripheral Nerve, has served on the Board of Directors of the American Association for Hand Surgery and is on the Editorial Board of HAND and the Journal of Hand Surgery Am.

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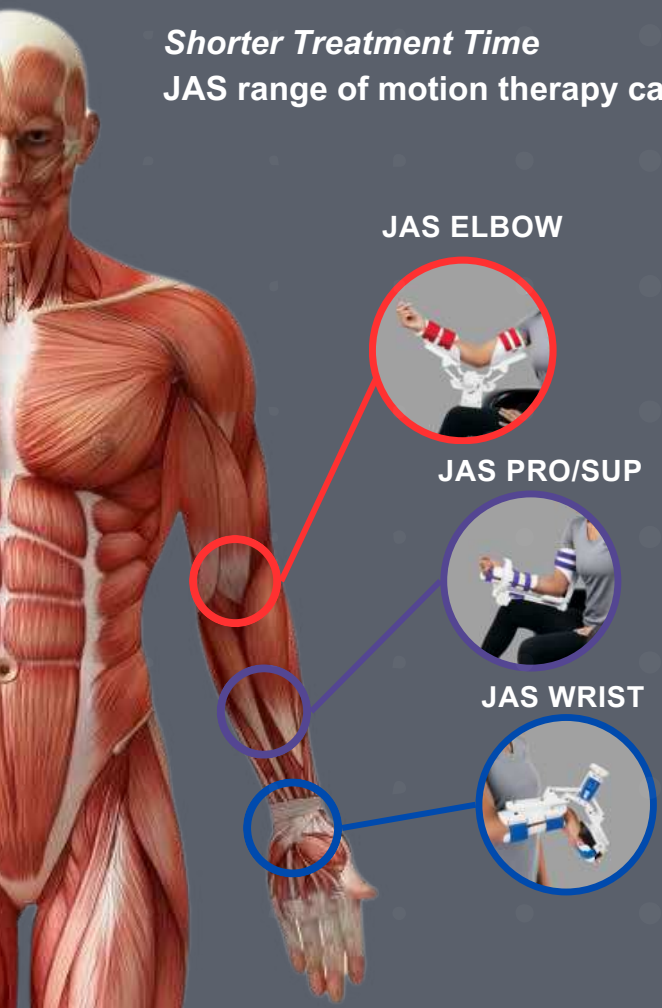

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Jean-François Ouellet

Jean-François Ouellet

Jean-François graduated from McGill University with a B Sc. (O.T.) in 2003 and holds a current registration to practice in the province of Quebec as an Occupational Therapist (OEQ member). He has been working in private practices since 2003 exclusively treating elbow, wrist and hand injuries. He has been a Certified Hand Therapist since 2009. He was coordinator of the Montreal Hand Interest Group for 8 years. He worked as an assistant-teacher for orthotic labs at McGill University from 2009 to 2014. He has been an invited speaker at numerous Quebec Hand Surgery Conferences (ASCPEQ) as well as for the Canadian Society of Hand Therapists (CSHT). Jean-François has been mentoring other therapists and has a passion for sharing his knowledge. He regularly teaches wrist and hand examination courses to GPs through GMFs. He also works with professional athletes from various fields and associations (NHL, MLS, UFC, CFL, olympians, performing artists, QMJLH,...). He has joined Kinatex Brossard in 2023. He serves as President for the Canadian Society of Hand Therapists.

Tara Packham

Tara Packham

Dr. Tara Packham is an occupational therapist with over 25 years of experience in hand and upper limb rehabilitation, which birthed an interest in pain research. She has published over 70 papers and book chapters on topics related to pain and hand therapy, and was proud to represent Canada as the keynote speaker at the most recent IFSHT congress. Tara is an assistant professor in the School of Rehabilitation Science at McMaster University in Hamilton, Ontario where she teaches and tweets about hand therapy, pain research and knowledge translation.

Jonathan Persitz

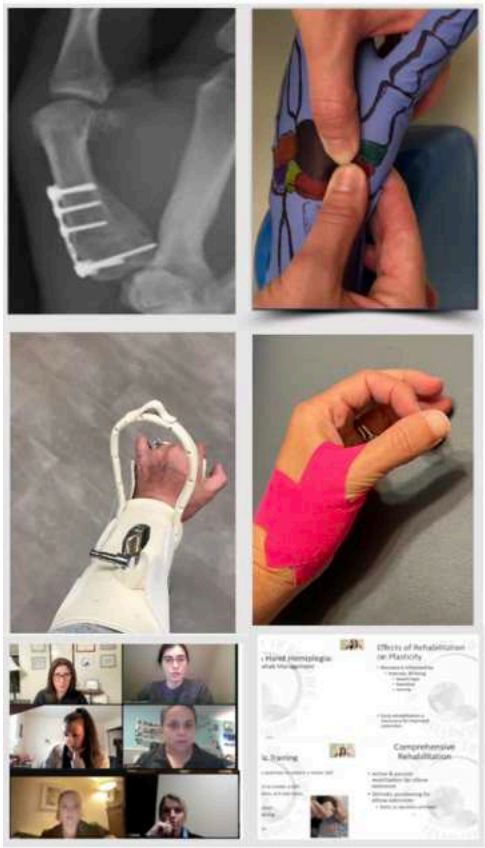
Dr. Persitz is a hand and wrist surgeon-investigator at the University Health Network and an assistant professor in the Department of Surgery at the University of Toronto. After graduating summa cum laude from medical school, he completed his orthopaedic surgery residency at the Yitzhak Shamir Medical Center in Israel, which is affiliated with Tel Aviv University. He then refined his expertise through international fellowships in hand and peripheral nerve surgery at the Hand and Peripheral Nerves Department at Inselspital in Bern, Switzerland, and at the Hand & Wrist Department at Chelsea and Westminster Hospital in London, UK. Following his residency, he pursued dual fellowship training in upper extremity surgery at Yitzhak Shamir Medical Center in Israel and in hand, wrist, and peripheral nerve surgery at the Toronto Western Hospital's Hand Program in Toronto. Dr. Persitz is actively involved in research aimed at optimizing the quality of care and clinical outcomes in the acute surgical care and post-traumatic reconstruction of distal radius fractures, as well as evaluating treatment approaches for base of thumb arthritis. He is currently pursuing a Master of Science degree at the University of Toronto's Institute of Medical Science to further advance his research efforts, particularly focusing on enhancing the quality of care and functional outcomes related to distal radius fractures.

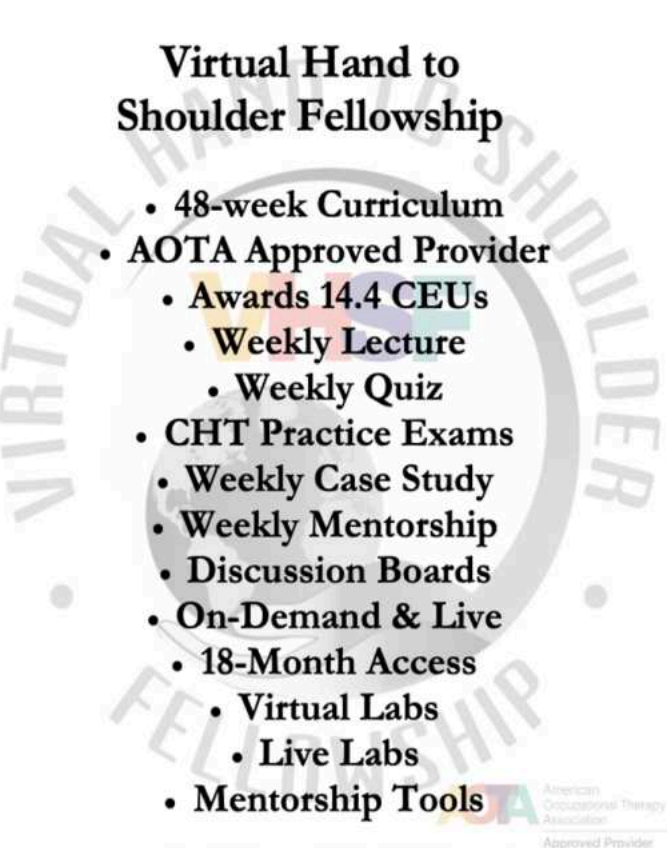
Jonathan Persitz

Joey Pipicelli

Joey Pipicelli graduated from Western University with a MScOT in 2003 and became a Certified Hand Therapist in 2008. He has been working as a Hand Therapist at the Roth | McFarlane Hand and Upper Limb Centre (RM-HULC) in London, Ontario since 2009. Currently, he serves as Coordinator of the Chinchalkar Hand Therapy

Joey Pipicelli





Fellowship program within the RM-HULC. He is a Lecturer at Western University with the School of Occupational Therapy and Upper Extremity Rehabilitation Advanced Health Care Practice program with in the Faculty of Health Sciences. He teaches orthotic fabrication and various facets of upper extremity rehabilitation. With CSHT, he currently serves as the Vice-President. He has also served as the Annual Meeting Conference Program Co-Chair in 2012 and 2016, Scientific Chair in 2010 and 2011 and has held the role of Regional Representative for the London, Ontario area for more than 10 years. Joey is passionate about sharing his knowledge with students and therapists who have an interest in hand therapy practice and participates in clinical teaching to medical students, residents, and orthopaedic and plastic surgery fellows during their training at the RM-HULC. He has been an invited presenter at CSHT, ASHT, ASSH and IFSHT Meetings on multiple occasions.

Barbara Shankland

Barbara Shankland

Barbara Shankland, BSc (OT), MSC, OT(C), erg, CHT is an occupational therapist and certified hand therapist. She has extensive clinical experience in both the public and private sectors and has worked primarily with clients who have musculoskeletal and upper extremity conditions. At present she is a full time Assistant Professor at the McGill School of Physical and Occupational Therapy. In 2023, she received the Lifetime Membership Award from the Canadian Society of Hand Therapists.

Herb von Schroeder

Dr. Herb von Schroeder MD, MSC, FRSC, is an Associate Professor and an Orthopaedic Surgeon at the University of Toronto. His education, post graduate degrees, and training were earned at the Universities of British Columbia, Ottawa, Toronto, California and Kentucky. Dr. von Schroeder's subspecialty area of expertise is in Hand and Wrist surgery, including trauma, sport injuries, and wrist reconstruction. He has published over 100 scientific articles and book chapters in his field and frequently travels nationally and internationally to teach and lecture on topics relating to Hand and Wrist surgery. He has a busy academic and tertiary care practice at the University Health Network and is a consultant for the Workers' Compensation Specialty Clinics, Toronto Maple Leafs, the NHL Players Association, and consults on many local and international amateur and professional athletes.

Herb von Schroeder

Scientific Session Abstracts

Upper limb participation after brachial plexus birth injury from childhood to young adulthood: A qualitative study

Laura Ireland BASc, MScOT Student (laura.ireland@mail.utoronto.ca); Shelby Rabb BHK, MMASc, MScOT Student; Lexi Davidson BSc, MScOT Student; Emily S. Ho, OT Reg. (Ont), PhD

Department of Occupational Science and Occupational Therapy, University of Toronto

Introduction: One of the most impactful peripheral nerve injuries is a brachial plexus injury, which can lead to significant upper limb impairments as well as psychosocial effects that influence occupational choice and participation. Despite physical impairments in the arm and hand many children with BPBI physically adapt well; however, the Self-Determination theory has influenced our understanding of how transformations in the areas of self-efficacy, autonomy, and belongingness may influence participation throughout the lifespan. Research has not been conducted to explore the evolution of upper limb participation from childhood to adulthood after BPBI.

Purpose of the Study: The objective of this study is to explore what understandings and insights can we gain from the lived experiences of young adults (age 19-34) with BPBI through their lifelong participation.

Methods: For this qualitative study an interpretive description approach was used to conduct semi-structured interviews exploring young adults with BPBI's upper limb participation in the context of their experiences of self-efficacy, parental autonomy support, and social relatedness. Interviews were conducted virtually via Microsoft Teams and transcribed. Two independent researchers verified the transcripts and coded them inductively. Codes were discussed iteratively among all researchers to develop a central codebook, followed by thematic analysis. Reflective journaling and an audit trail were maintained for qualitative rigour.

Results: Nine young adults with BPBI (2M: 7F) between 19 and 28 years old were interviewed. Seven had upper plexus injuries and two had total plexus injuries that affected their hand function. As recruitment was made on social media, two participants were from outside of Canada (USA, UK). Preliminary analysis of qualitative coding indicates that young adults experience a shift in upper limb participation from childhood to young adulthood as awareness of their own physical competencies increases. Occupational choices were influenced by factors such as development of personal interests, social supports, and feasibility (e.g., access, financial) of adaptative resources. Lived experiences of pain after BPBI that were not experienced in childhood also influenced upper limb participation in adulthood.

Discussion: The preliminary findings from our study provides insights on approaches to coach children with BPBI and their caregivers/parents on upper limb participation concerns that may arise in young adulthood. More specifically, strategies to foster problem solving through physical, financial, and psychosocial barriers to participation that arise during on campus, employment, and social environments may be helpful.

Conclusion: Through this research we want to further gain understanding and insights from the lived experiences of young adults with BPBI through their lifelong participation to further help bridge this gap regarding support for this specific population.

Keywords: Brachial Plexus Birth Injury (BPBI) Participation

An exploratory study on factors associated with participation in adults with brachial plexus birth injury

Lexi Davidson, MScOT Student (lexi.davidson@mail.utoronto.ca); Kristen M. Davidge, MD; Samantha Anthony, PhD; Christine Novak, PT, PhD; Andrea Chan, MD; Emily S. Ho, OT Reg. (Ont), PhD

Rehabilitation Sciences Institute, University of Toronto & Hospital for Sick Children, Toronto

Introduction: Individuals living with BPBI typically undergo surgical and physical interventions between 0-18 years of age, to mitigate functional limitations. Subsequent outcomes of participation are generally satisfactory; however, literature indicates unmet psychosocial needs in pediatric populations with unknown impacts on participation. Even less is known about adult BPBI populations. Without long-term insights into psychosocial factors of participation, both long-term efficacy of childhood interventions and the occupational wellbeing of adults in this population remain poorly understood.

Purpose: This exploratory study aims to identify key factors associated with participation outcomes in adults with BPBI, by 1) comparing participation outcomes of adults with BPBI to reference populations; 2) identifying relationships between mental health, physical health, and pain with participation; and 3) describing the influence of socioeconomic status on participation in this population.

Methods: A convenience sample of adults with self-reported BPBI were recruited through BPBI social networks. Eligible participants had a BPBI, were 19-34 years of age, any sexual or gender orientation, not in high school, English-speaking, and without cognitive or lower limb impairments. Quantitative data included standardized questionnaires of upper limb function (QuickDASH), physical and mental health (SF-12), pain interference (BPI), and participation (USER-P, primary outcome). USER-P Participation Restriction scores were referenced to a published Dutch adult BPBI population using T-tests. Descriptive statistics and spearman correlation tests were used to investigate relationships between questionnaires. Socioeconomic variables were compared using Kruskal-Wallis tests.

Results: Twenty-six adults (20F:6M) with an upper or total BPBI, with an average age of 25.9 ± 4.0 years, participated between Jan 1, 2023, and Dec 31, 2023. The majority of respondents had an upper BPBI (73%), were Caucasian (62%), and resided in Canada (58%). Participation Restriction (USER-P) scores were 85.2 ±14.9, relative to the reference population (75.1 ±20.4). USER-P Participation Restrictions were moderately and significantly correlated with the QuickDASH (r_s=-0.66, p<.001), SF-12 Physical Health (r_s=0.59 p=.002), SF-12 Mental Health (r_s=0.47, p =.02), and BPI Pain Interference (r_s=-0.44, p=.02). Comparative analyses of socioeconomic variables and participation were inconclusive.

Discussion: The sampled BPBI population perceived fewer participation restrictions in everyday life, relative to the reference population. Participation restrictions were found to correlate with mental health, physical health, and upper limb activity function. Key findings highlight the intersectional nature of mental and physical health in participation restrictions in adults with BPBI, as well as positive correlations of pain interference to participation restrictions for this population. These insights may inform future research and post-pediatric care approaches for adults with BPBI.

Conclusion: The sample of adult BPBI participants of this study had better-than-expected participation outcomes than the reference population, although socioeconomic factors were inconclusive. Further studies using larger sample sizes and qualitative methods, might better elucidate relationships between mental health, physical health, pain, socioeconomic influences, and participation.

Keywords: Brachial plexus birth injury; upper limb differences; participation, occupational therapy; hand therapy; rehabilitation; psychosocial health.

A flexible custom 3D-printed finger stabilization orthosis using TPU to manage lateral band subluxation for a bagpipe musician in a virtual setting

Stella Wang, OTR/L, CHT (stella@durathumb.com)

Kaiser Permanente, Santa Clara, California

Introduction: Lateral band subluxation causes a 'pseudo trigger' of the affected digit at PIP (proximal interphalangeal) joint when the digit snaps into flexion from hyperextension. A 65-year-old bagpipe musician with this condition in his right fifth digit required a flexible yet supportive figure 8 style finger orthosis.

Case presentation: The client had been using traditional rigid finger stabilization orthoses to help manage the symptoms; however, he found that conventional rigid orthoses did not allow him to play certain notes that required more finger flexibility. This case study describes the client-centered collaborative design process of a custom 3D-printed finger stabilization orthoses using thermoplastic polyurethane (TPU), a rubber-like flexible, yet durable 3D-printing filament.

Design process (methods and results): Due to physical distance constraint, all contact including sizing and protype trials were conducted virtually. To simplify the measurement process, only the ring size of the affected finger was collected following standard US ring sizes. A parametric model of a figure 8 style orthosis was drawn using a computer-aided design (CAD) program based on measurements extrapolated from the ring size. Three prototypes were generated in half ring size (0.4mm in diameter) increments to capture the best potential fit. The client provided feedback on the fit and feel of each design prototype via photos and descriptions over email. Based on the first round of protype trial, the client suggested a shorter total length of the orthosis, but was otherwise satisfied with the support from the 3D-printed TPU material. A second round of prototypes were conducted with a modified parametric model based on the client's feedback. The final orthosis was selected based on the best fitting prototype from the second trial. The patient was able to play his instrument with the orthosis effectively without experiencing lateral band subluxation in the affected digit.

Discussion: 3D printing can create custom orthoses in shapes and properties that conventional thermoplastic orthoses cannot. By designing the orthosis using a CAD program, precise modifications were able to be easily made based the client's feedback. The use of a flexible and durable 3D printing filament also satisfied the unique occupational demand of the client as a bagpipe player, who could not tolerate wearing a rigid orthosis while playing his instrument. TPU was both strong enough to stabilize the finger to prevent lateral band subluxation and flexible enough to allow the client to play his instrument.

Conclusion: This case demonstrates the successful application of 3D printing to produce an effective and comfortable finger orthosis for a client with unique occupational challenges in a virtual setting. 3D printing can expand the variety and setting in which hand therapist can create custom orthoses. Currently 3D printing is not accessible to most hand therapists, hope this study can inspire other therapists to explore this space.

Keywords: 3D-printing, computer-aided design, finger stabilization orthosis, lateral band subluxation, musician, client-centered

Canmore, AB by CSHT Member Stacey Will

How is range of motion of the fingers measured in hand therapy practice? A survey study

Zeal Kadakia (kadakiaz@mcmaster.ca), MSc; Sandra Vanderkaay, OT Reg. (Ont), PhD; Ayse Kuspinar, PT, PhD; Tara Packham, OT Reg. (Ont), PhD

School of Rehabilitation Science, McMaster University

Introduction: Hand therapists can measure finger range of motion (ROM) in a variety of ways, however, there is no clear description of which methods are preferred and used in practice. How and why do therapists select a particular method, and when might they choose do things differently?

Purpose: This study explored the preferred measurement techniques used by hand therapists to measure finger ROM, the factors influencing their clinical decision-making, and the clinical reasoning processes employed when faced with practice-based finger ROM measurement scenarios.

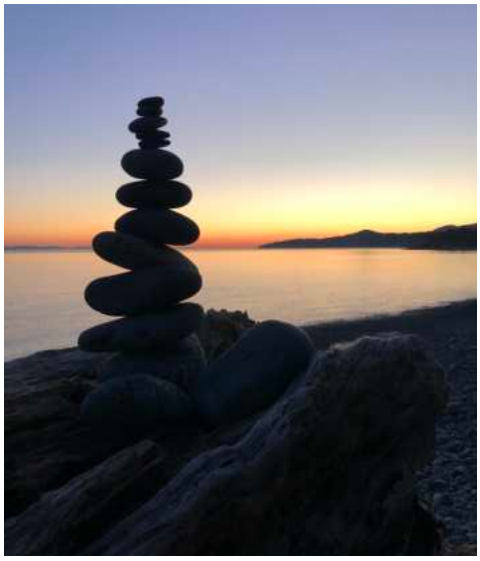
Methods: Data was collected through an online survey distributed to members of the American and the Canadian Society of Hand Therapists (ASHT, CSHT). Quantitative methods were employed for participant demographics, and categorical clinical questions about preferences and practice patterns. Qualitative descriptive questions and vignettes were analyzed using inductive and deductive content analysis, respectively.

Results: Four hundred and eighty-one responses were included, representing hand therapists with a median age of 51 and median experience of 19 years. Participants preferred measuring individual joints with a goniometer (N=210, 44%), reporting it was useful to informing treatment decisions, reliability, and their confidence in measurement skills. Participants also preferred active functional ROM (N=117, 24%) for being quick, easy, and useful in informing treatment decisions. Participants reported using different methods with time constraints in a busy clinic, having to take precautions with pins/wounds, bulky dressings/casts, considering pain tolerance levels of patients, or with specific pathologies. Participants' responses to the multi-stage vignette identified that they engaged in procedural and pragmatic reasoning modified by contextual factors when measuring finger ROM.

Discussion: Although performing joint ROM tests falls within the scope of practice guidelines for occupational therapy assistants (OTA) and physiotherapy assistants (PTA) practice, the majority of therapists in our study did not delegate finger ROM measurement tasks to therapy assistants. Hand therapy is a specialized profession which may be a key reason behind the limited delegation of measurement tasks. None of the participants rated either AFROM or PFROM as reliable or valid. This can be attributed to limited literature on the psychometric properties of the FROM.

Conclusions: Hand therapists use multiple methods to measure finger ROM while preferring to use goniometers to measure individual finger joints. They employ distinct patterns of clinical reasoning approaches within individual vignettes. This study provides insight into the current professional practice patterns and provides variations for consideration by therapist educators and clinical preceptors. This study also identifies opportunities for improving evidence for clinical measurement methods and the implementation of evidence-based practice relative to existing evidence.

Keywords: Range of motion, hand therapy, finger, survey



Sooke, BC by CSHT Member Emily Grainger

Poster Abstracts

Hand & upper limb evaluations: A critical analysis of their use with indigenous clients

Mallory Landry, MScOT (mallorylandry3@gmail.com); Lauren Stathakis, MScOT (lauren@empowerrehab.com); Karen Landry, BScOT, MSc

School of Occupational Therapy, Dalhousie University

Introduction: Standardized hand and upper limb evaluations are frequently completed by hand therapists in a variety of practice settings. However, little is known about the cultural sensitivity of standardized evaluations commonly used, especially related to Indigenous populations.

Purpose of the Study: The purpose of this integrative literature review is to identify commonly used hand and upper limb evaluations and critically analyze their suitability for Indigenous populations. This review describes the evaluations, as well as explores considerations that can be used in practice to foster cultural humility.

Methods: A comprehensive search across a range of databases including PubMed, CINAHL, MEDLINE at OVID, ERIC, and OTseeker was completed for articles published in English from 2004 to 2024.

Results: This review reveals there is very little information in the literature to guide hand therapists in practicing cultural humility when considering commonly used hand and upper limb evaluations.

Discussion: The majority of studies had outcomes that drew on core values of the occupational and physiotherapy professions, including: providing a respectful and non-judgmental environment, acknowledging and welcoming diversity and equity, and valuing and respecting personal values and beliefs of our clients. Common themes identified in the analysis included the differences in concepts of Western medical models compared to indigenous world views and ways of knowing and being; limitations on what occupations/tasks are being assessed; and, the emphasis placed on independence compared to interdependence. Health care professionals should reflect on their own biases and use clinical reasoning when considering the appropriateness or relevance of the hand and upper limb evaluations being used with Indigenous clients.

Calgary, AB, by CSHT Member Thais Rondini Nucci

Conclusion: This review considers the potential implications of standardized hand and upper limb evaluations with Indigenous populations. This approach could be used to model other hand and upper limb evaluations in a variety of practice areas.

Keywords: *"upper extremity", "hand evaluations", "upper limb", "Indigenous populations", "hand therapy", "hand rehabilitation"*

Definition and measurement of functional first web space: A scoping review

Kate K. Kim, MScOT Student (katekyuri.kim@mail.utoronto.ca); Farah Bacchus-Misir, MScOT Student, Emily S. Ho, OT Reg. (Ont), PhD

Rehabilitation Sciences Institute, University of Toronto, Department of Occupational Science and Occupational Therapy, University of Toronto, and The Hospital for Sick Children, Toronto

Introduction/Purpose: The first web space of hands has been understood to be crucial in daily activities involving the motions of cylindrical grasp and pinch. Participation in such activities is dependent on developmental stage, occupation, and/or, life context; making it difficult to define 'functional' first web space. Without clear definitions, identifying the need for reconstructive surgery based on its deficiency is challenging. This scoping review aims to evaluate the methods used to quantify the measurement of the anatomical first web space and synthesize what is known about the definition of functional first web space in pediatric populations.

Methods: Following Arksey and O'Malley's (2005) six-stage scoping review framework, 4560 term combinations were searched on MEDLINE from inception until January 2023 in conjunction with a medical librarian. Title/abstract and full-text screening processes were conducted followed by appraising, charting, collating, and summarizing included articles by two independent reviewers.

Results: Of 170 articles found, 20 full-text articles were included. The age range of included papers was between 0.0 and 77.0 years; all included pediatric populations. Traumatic (n = 5, 25%), congenital (n = 14, 70%), and healthy (n =3, 15%) hands were studied. Most studies (95%, n = 20) were cross-sectional with one (5%) comparative outcome study and one (5%) comparative outcome study.

Quantified measurement of first web space was reported in 95% (n = 19) of studies, and 70% (n = 14) included qualitative descriptions. Most studies (80%, n = 16) measured the carpometacarpal (CMC) joint, of those which 90% (n = 9) measured palmar abduction. Out of those that measured CMC palmar abduction, 67% (n = 6) measured radiographically. Among those, four (20%) studies used Takagi's method of holding a cone to measure cylindrical grasp and showed improvement in first web space pre- and post-operation or distinguished between affected and unaffected first web space. One additional study used a 9 cm cone to measure cylindrical grasp. However, all methods used to measure first web space had no evidence of reliability.

Among 19 (95%) studies with quantitative measurement, a variety of numbers and types of measurements were captured. It was difficult to synthesize the recorded numbers for the measurements because the range and type of numbers differed between studies with varying measurement methods.

Discussion/Conclusions: Overall, a consensus on methods of measuring first web space and the definitions of functional and deficient first web space is lacking, which is problematic in evaluating reconstructive surgical and rehabilitation plans for evidence-based practice. The methods of measuring the first web space vary and the relationship between measured space and functional outcome is unknown. While values for preoperative, postoperative, and normative first web spaces were reported in some studies, justifying these values as the definition of deficient or functional first web space is difficult due to inconsistency in measurement and reporting methods. Thus, the synthesis of the literature is the first step to operationalizing the definition and measurement of functional first web space.

Keywords: first web space, first web space measurement, functional first web space, deficient first web space

Dog leashes – Friend or foe

Lynda O'Callaghan, PT, MA (lynda.ocallaghan@unityhealth.to) ; Antoinette Krakovsky, OT Reg.(Ont) (antoinette.krakovsky@unityhealth.to)

Unity Health St. Joseph's, Toronto

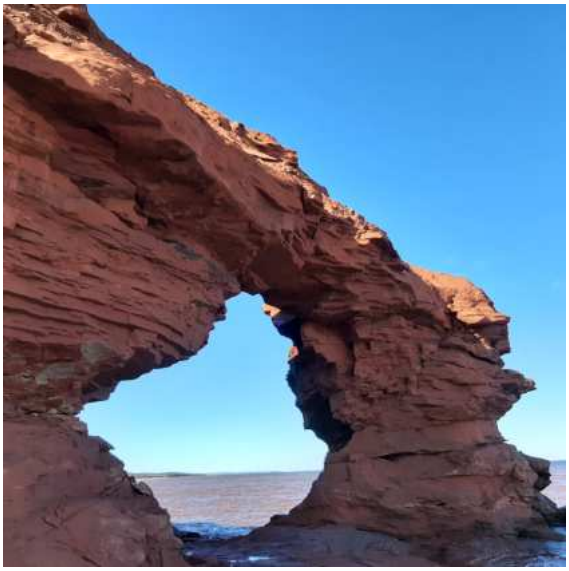
Background:

The clinical hand team at an urban, community, teaching hospital treated a cluster of hand injuries with a wide range of diagnoses due to dog leashes. This patient population required a considerable amount of treatment time and resources, sparking an interest in the topic of dog leash injuries. Little information is available regarding hand injuries caused by dog leashes, most literature focusses on bite injuries. The US national estimated number of dog leash related injuries was 356,746 between 2001-2018 (Maxson et al.,2023). It is reported that the most common injuries were fractures, and the upper extremity was the most common body part affected.

Hypothesis: Dog walkers/owners are unaware of the risk of hand injuries that dog leashes pose.

Methods: Eight patients who had suffered a dog leash injury were informally interviewed to assess their awareness for potential injury while walking their dogs. Injuries included Proximal Interphalangeal (PIP) and Distal interphalangeal (DIP) fractures often requiring surgery, PIP dislocation requiring closed reduction, PIP radial collateral band injury requiring surgery and flexor tendon rupture requiring surgery. The discussion primarily focused on patient awareness of potential injury and suggestions for injury prevention. Questions included mechanism of injury, patient and dog training, type of leash and type of dog including weight. Patient responses to the questionnaire were tallied and reviewed for common themes. Standard outcome measures were recorded as part of usual care. The number of treatment visits and length of time required to treat the injuries were also documented. A background literature search was conducted using electronic databases, Medline and CINAHL (Cumulative Index to Nursing and Allied Health Literature) from 2010-2024 for abstracts that included hand injuries and dog leashes.

Results: Case-based presentations that highlight the severity of injury, the patient's awareness of potential injuries, and their prevention of injury strategies are presented. All 8 patients reported being unaware that dog leashes could cause their injuries. During initial assessments, patients reported being surprised at the number of people injured, and the severity of injuries, caused by dog leashes. The number of treatment visits varied depending on the type and location of injury. Review of outcome measures including ROM, strength and function (Patient rated wrist/hand evaluation) were also included.



PEI, by CSHT Member Tara Packham

Summary: Dog owners in this sample were unaware of the potential for hand injuries and the risk of permanent disability that their leash may cause. Health care providers have the opportunity and the knowledge to provide public awareness of the risk of dog leashes on hand injuries. Patient feedback suggested that different forms of social media such as TikTok may be effective means of communicating this information.

Pattern recognition myoelectric prothesis fitting on transradial amputation: A case study

Éliane Archambault, Erg. (eliane.archambault@umontreal.ca); Maude Mainville, Erg.

School of Rehabilitation at Université de Montréal

Introduction. Myoelectric prostheses are used to gain more functionality following an upper limb amputation. However, several studies reveal poor user satisfaction with current technology partly due to the complexity of required manipulations and limited fine motor movements. A new technology, the Myo Plus Pattern Recognition System (Ottobock), has recently been created specifically for individuals with trans-radial limb loss. By integrating artificial intelligence with the user's intuitive and inherent electromyography (EMG) signals, Myo Plus seamlessly adjusts to natural movements, eliminating the need for users to conform to the system. This innovative system provides direct, user-friendly control of the prosthesis without the necessity for additional switching mechanisms. However, new technology requires training and brings additional challenges.

Purpose of the study. This study aims to document the rehabilitation and fitting process of the first patient in Quebec to receive this new technology through a case study. All the while, it aims to present and offer realistic recommendations to help future healthcare professionals with similar cases.

Methods & findings. To do so, a partnership with l'Institut de réadaptation Gingras-Lindsay-de-Montréal (IRGLM), a rehabilitation center in Montreal, was formed. The patient is a 62-year-old man who had a work injury resulting in the loss of the better part of his right forearm leaving him with a 4 cm stump just below the elbow when he was 18 years old. His treatment process was documented through clinical observations, review of the clinical file, two data collections using standardized evaluation tools and the analysis of this data. The patient was evaluated through three different standardized evaluations while wearing his old prosthesis first. The same procedures were then done again 11 months later once he received his new prothesis. Poor use of his old prosthesis was documented through the first data collection. Simultaneously, documents were created to support the occupational therapist's (OT) clinical judgement regarding the fitting of an upper limb prosthesis in order to help the care of future patients and to assure sustainability. Ottobock's training programs were used and adapted to the Province of Quebec's healthcare system. These documents demonstrate the OT's place in the patient's rehabilitation process from post-op care to the final personalized adjustments of a myoelectric prosthesis.

Discussion. Due to external factors, the patient didn't have a lot of time to experiment on real-time myoelectric pattern recognition before the second data collection. However, his results showed distinctive increase in functionality with his new hand with poor practice time. This suggests that the Myo Plus pattern recognition system provides a more intuitive use of myoelectric prosthesis and a more functional outcome. Further evaluations would be suggested to present more significant results by taking more measurements to document the long-term impact of the prosthesis.

Conclusion. This case study relates precisely to this patient's treatment process documenting all milestones and obstacles encountered in the past year. Two additional data collections are planned, six months post-fitting and a year after the fitting process, to assess the long-term impact of the prosthesis.

Calgary, AB, by CSHT Member Desiree Kadelbach

A novel design for dynamic-assist orthosis for shoulder external rotation

Juliana Larocerie, OT Reg. (Ont); Kristen MacDonald, OT Reg. (Ont); Samantha Lau

Roth| McFarlane Hand and Upper Limb Centre, London

Introduction: Injuries affecting the nerves responsible for shoulder stability and motion can lead to significant dysfunction in the associated extremity. This impairment becomes particularly impactful when the ability for shoulder external rotation is compromised, hindering the precise positioning of the hand for daily tasks. Whether the nerves supplying these muscles undergo reconstruction or spontaneous recovery, the restoration of function is a gradual process, with nerve fibers regenerating at an approximate rate of 1mm per day.

Dynamic-assist orthoses have emerged as a highly effective therapeutic strategy for rehabilitating weakened muscles, especially those graded at Medical Research Council (MRC) grade 2, where the ability to move against gravity is minimal or absent. These orthoses facilitate weakened muscles to perform at a higher MRC grade than their actual strength, contributing to enhanced functional use. The frequent activation of recovering muscles not only improves strength and endurance but also concurrently enhances cortical activation of the newly acquired motion.

Objective: The purpose of this abstract is to demonstrate the advantages of an innovative orthosis design aimed at improving shoulder external rotation in recovering muscles post-nerve injury, as well as to demonstrate the functional implications to the client.

Methods: A novel dynamic orthosis for supporting shoulder external rotation was designed for clients with deficits post-peripheral nerve injuries. The materials utilized include a postural figure-of-eight harness, neoprene, Velcro, D-rings, Dycem, and a sewing machine. To assess the orthosis's impact on function, clients completed the Disabilities of the Arm, Shoulder, and Hand (DASH) Questionnaire, a self-rated measure, both with and without the orthosis. Timed recordings of functional daily tasks meaningful to clients were also conducted under both conditions.

Results: Two adult males participated in the design and testing process. The use of the orthosis resulted in an improvement in self-rated function, as indicated by the DASH questionnaire, and a notable enhancement in the time taken to perform common daily tasks compared to when the orthosis was not used.

Conclusions: We successfully developed an adjustable, soft dynamic-assist orthosis to augment shoulder external rotation, thereby improving the functional use of the affected extremity recovering from nerve injuries.

Parc Jacques Cartier, QC, by CSHT Member Barbara Shankland

Banff, AB, by CSHT Member Stacey Will