ASHT 2024 ANNUAL MEETING

American Society of Hand Therapists®

September 26-29, 2024 | St. Louis, MO

FINAL PROGRAM

INTEGRATING PERSPECTIVES:
Learning, Collaborating and Innovating

meetings.asht.org

The value OF MEMBERSHIP IN ASHT REALLY ADDS UP:

A $235 discount on the **Annual Meeting**

Free subscriptions to the *Journal of Hand Therapy* **($182 VALUE),** and the *ASHT Times* magazine **($100 VALUE),** and a **50% DISCOUNT** to the *Journal of Hand Surgery*

ONLINE BOOKSTORE discounts up to **$376**

Free CE credit each month by participating in the Journal Club **($420 VALUE)**

Discounts on ASHT Career Center postings (10% SAVINGS)

COMPLIMENTARY listing in the **FIND A THERAPIST** public membership directory

Discounts on the continuing education Webinar Series ($500+ savings)

IT'S EASY TO SEE

HOW YOUR MEMBER DUES INVESTMENT **PAYS FOR ITSELF!**

Please see reverse for more information

ASHT is the only association dedicated to meeting the needs of hand therapists.

ASHT offers a wide range of membership levels to **occupational, physical and hand therapists,** as well as hand surgeons, nurse practitioners and allied health professionals!

BENEFITS

PUBLICATIONS

- Annual subscription to the quarterly *Journal of Hand Therapy*
- *ASHT Times* quarterly online member magazine
- Over 50% off the price of ASSH's *Journal of Hand Surgery*

CONTINUING EDUCATION

- Discounted registration to the ASHT Annual Meeting
- Continuing education workshops and events, including: Hand Therapy Review Course, Hands On Orthotics workshops, popular webinar series, ASHT traveling course, UE Institute
- Discounts on publications and products

PRACTICE MANAGEMENT

- Best practice standards for domain of hand and upper extremity therapy
- Legislative Action Center
- Resources for your hand and upper extremity therapy practice
- Professional liability insurance at member rates

RESEARCH

- Journal Club — official monthly online discussion forum for the *Journal of Hand Therapy* (earn one free CE credit)
- Practical support for new researchers
- Monthly research updates

REFERRALS

- Find a Member Therapist online public directory
- Find a Clinic online public directory

CAREERS

- Enhanced career center for posting & searching jobs
- Mentoring program

NETWORKING

- Reach therapists across the US and around the world
- Share and discuss a variety of issues in the improved e-Community
- Searchable Find a Therapist member directory
- Eligibility for ASSH Affiliate membership

American Society of Hand Therapists®

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The American Society of Hand Therapists (ASHT) gratefully acknowledges the following companies which have elected to sponsor the ASHT 2024 Annual Meeting.

PLATINUM:

GOLD:

SILVER:

Dear Colleagues,

On behalf of the 2024 ASHT Annual Meeting Committee, it is my pleasure to invite you to our 47th Annual Meeting on September 26-29, 2024, in St. Louis, MO. Our theme is "**Integrating Perspectives: Learning, Collaborating and Innovating**," which highlights and celebrates the richness of what we can learn from each other within our specialty, as well as from perspectives and disciplines outside of our specialty. Thank you to those who submitted proposals during the Call for Sessions – you are the co-creators of the meeting experience.

New this year is the **ASHT Pediatric Specialty Day**, a special full-day pre-conference event on Thursday. Join us on a journey beyond the fundamentals, delving into the intricacies of pediatric hand therapy, and then stay for the full meeting experience. Thank you to the co-chairs of this inaugural event: Peggy Faussett, MOTR/L, CHT and Lindsey Williams, OT, CHT.

Also new this year are **Clinical Practice Posters**, which are intended to increase the amount of educational content and number of speaker opportunities at the Annual Meeting. We are excited to offer this new opportunity and encourage all attendees to engage with this new content on the on-site digital kiosks and the online platform.

Other highlights of the meeting include **multiple Pre-Conference Institutes, high-impact plenary sessions, and 30+ instructional concurrent sessions**. After the pre-conference events, non-stop content will span from Thursday evening through Sunday morning, with the ability to earn up to 3 continuing education hours on Sunday. The main meeting will kick off with an outstanding opening session on Thursday evening that includes a lecture by Daniel A. Osei, MD, MSc and a panel on shared decision-making. On Friday, be inspired by the presidential invited speaker Hope Boykin—a multi-hyphenate dancer, choreographer, educator, director, writer, and speaker—and the 2024 Presidential Address by Aviva L. Wolff, EdD, OT, CHT. Elevate your practice on Saturday with a lecture on the patient experience by our international invited speaker Jean Paul Brutus, MD. Attend the scientific sessions, sponsored by the American Hand Therapy Foundation, to help close the knowledge-to-practice gap. The exhibit hall, an annual highlight, will offer cutting-edge resources that will advance your practice. We will have special opportunities for students and first-time attendees. Additionally, we have not forgotten the fun – please register for St. Lou-a-Palooza (our attendee party) on Saturday evening!

The Annual Meeting will be held in the St. Louis Union Station Hotel, a boutique hotel that is part of the Curio Collection by Hilton. A unique experience, the hotel itself is an attraction this year. However, for those who cannot make it to St. Louis, we are again offering a virtual attendance experience where you can access the same high-quality content on demand.

Whether you are attending your first ASHT Annual Meeting or returning for your 25th, we believe you will leave energized and inspired.

We look forward to welcoming you to St. Louis in September!

Brocha Z. Stern, PhD, OTR, CHT
ASHT 2024 Annual Meeting Committee Chair

American Society of Hand Therapists®

MISSION
To build and support the community for professionals dedicated to the excellence of hand and upper extremity therapy.

VISION
To be the recognized leader in advancing the science and practice of hand and upper extremity therapy through education, advocacy, research and clinical standards.

WITH OUR THANKS

ASHT is supported by an often-invisible team of volunteers who selflessly dedicate their time and expertise to advance the hand and upper extremity therapy specialty.

We extend our gratitude to all our volunteers. Whether you serve on a committee or contribute materials for a workshop, you are the lifeblood of the society. Thank you for your time and energy, your efforts and your achievements.

ASHT PAST PRESIDENTS

2022-2023 Kendyl R. Brock Hunter, OTR/L, CHT
2021-2022 Diane Coker, PT, DPT, CHT
2020-2021 Rachel Pigott, MPH, OTR/L, CHT
2019-2020 Mo Herman, MA, OTR/L, CHT
2018-2019 Linda Klein, OTR, CHT
2017-2018 Kris Valdes, OTD, OT, CHT
2016-2017 Gary Solomon, MBA, MS, OTR/L, CHT
2016 Barbara Winthrop, MA, OTR, CVE, CHT, FAOTA
2015 Jane Fedorczyk, PT, PhD, CHT
2014 Maureen Hardy, MS, PT, CHT
2013 Sue Michlovitz, PT, PhD, CHT
2012 Dorit H. Aaron, MA, OTR, CHT, FAOTA
2011 Jerry Coverdale, OTR,CHT
2010 Peggy Boineau, OTR, CHT
2009 Joy MacDermid, BScPT, PhD
2008 Paige E. Kurtz, MS, OTR/L, CHT
2007 Stacey L. Doyon, OTR/L, CHT
2006 Christine Muhleman, OTR/L, CHT
2005 Donna Breger Stanton, MA, OTR/L, CHT, FAOTA
2004 William W. Walsh, MBA, MHA, OTR/L, CHT
2003 Chris B. Blake, OTR/L, CHT
2002 Ginger Clark, OTR, CHT
2001 Lauren Rivet, LOTR, CHT, FAOTA
2000 Joan Sullivan, MA, OTR, CHT
1999 Karen Stewart Pettengill, MS, OTR/L, CHT
1998 Judy Bell-Krotoski, OTR, FAOTA, CHT
1997 Terri L. Wolfe, OTR/L, CHT
1996 Valerie Holdeman Lee, PT, CHT
1995 Missy Donnell, OTR, CHT
1994 James W. King, MA, OTR, CHT
1993 Heidi Hermann Wright, MBA, OTR, CHT
1992 Janet Waylett-Rendall, OTR, CHT
1991 Patricia Taylor Mullins, PT, CHT
1990 Judy C. Colditz, OTR/L, CHT, FAOTA
1989 Nancy M. Cannon, OTR, CHT
1988 Lynnlee Fullenwider, OTR/L, CHT
1987 Anne Callahan, MS, OTR/L, CHT, CLT
1986 Shellye (Bittinger) Godfrey, OTR/L, CDE II, CHT, CWS
1985 Georgiann Laseter, OTR, FAOTA, CHT
1984 Mary C. Kasch, OTR, CVE, CHT
1983 Margaret S. Carter, OTR, CHT
1982 Evelyn Mackin-Henry, PT
1981 Gloria Hershman, OTR, FAOTA
1980 Karen H. (Prendergast) Lauckhardt, MA, PT, CHT
1978 - 79 Bonnie Olivett, OTR, CHT

ASHT
1120 Route 73, Suite 200
Mt. Laurel, NJ 08054
www.asht.org

2023-2024 ASHT BOARD OF DIRECTORS

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Board Member-at-Large

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Practice Division Director

Peggy Faussett, MOTR/L, CHT
2024 Pediatric Specialty Day Co-Chair

Lindsey Williams, OT, CHT
2024 Pediatric Specialty Day Co-Chair

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Associate Executive Director

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Director of Education & Outreach

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Editorial Manager

AWARDS

LIFETIME FELLOWSHIP

Lifetime Fellowship status is an honor awarded to individuals in recognition of career-long contributions to the Society and the field of hand and upper extremity rehabilitation. Lifelong ASHT Fellows are honored for their long-term Society membership participation, exemplary leadership and documented achievements in the field. The cumulative effects of these recipients have been paramount in advancing the field of hand and upper extremity therapy through ASHT. Their talents have been diverse with integrated accomplishments. The nomination is open to ASHT members in good standing for a minimum of 25 years.

AWARD WINNERS

Terri Wolfe, OTR/L, CHT
Susan Michlovitz, PT, PhD, CHT, FAPTA
Joy MacDermid, PT, PhD
Kenneth R. Flowers, PT, CHT (retired)
Sharon Flinn, PhD, OTR/L, CHT
Judith A. Bell-Krotoski, OTR, FAOTA, CHT
Donna Breger Stanton, OTD, OTR/L, CHT, FAOTA
Nancy Cannon, OTR, CHT
Margaret S. Carter, OTR, CHT
Gloria DeVore, OTR
Roslyn B. Evans, OTR/L, CHT
Elaine E. Fess, MS, OTR, FAOTA, CHT
Lynnlee Fullenwider, OTR/L, CHT
Shellye Godfrey, OTR/L, CHT
Mary C. Kasch, OTR, CVE, CHT
Jim King, MA, OTR
Georgiann Laseter, OTR, FAOTA, CHT
Karen H.P. Lauckhardt, MA, PT, CHT
Evelyn J. Mackin, PT
Maude Malick, OTR
Bonnie Olivett, OTR, CHT

HONORARY MEMBERSHIP AWARD

The purpose of **Honorary Membership Award** is to recognize persons other than certified hand therapists who have made significant contributions to ASHT and the specialty of hand and upper extremity therapy through education, advocacy, research, public service, marketing and promotion of the ASHT's mission, vision and values; whose achievements are of national or international significance or influence and have provided notable service to the specialty of hand and upper extremity therapy.

Honorary Membership is awarded to an individual who is not already a member of ASHT and who is not eligible for Active or Associate membership in the society.

ASHT HONORARY MEMBERS

Nathalie R. Barr
Peter C. Amadio, MD
Lois M. Barber, OTR, FAOTA
Paul Brand, FRCS
Paul C. Dell, MD
Robert J. Duran, MD
Adrian E. Flatt, MD
L. Irene Hollis, OTR
James H. Hunter, MD
Dorothy Kaufman
Scott Kozin, MD
Don Lalonde, MD, FRCSC
John W. Madden, MD
John A. McAuliffe, MD
Robert McFarlane, MD
Wyndell Merritt, MD, FACS
Rita Patterson, PhD
Miguel Pirela-Cruz, MD
Neal Pratt, PT, PhD
Erik A. Rosenthal, MD
Alfred B. Swanson, MD
Robert M. Szabo, MD, MPH
Kululu M. Von Prince, OTR, EdD

NATHALIE BARR LECTURESHIP AWARD

The **Nathalie Barr Lectureship Award** is among ASHT's highest honors, recognizing and honoring an ASHT member who has made significant original contributions to hand and upper extremity rehabilitation and to ASHT. The nominee must have shared this information through publications and speaking presentations and/or shared a unique quality of work, theory, research and education that is original and genuinely supports ASHT's mission, vision and values in one of the following ways:

- Development or refinement of professional theory, clinical methods and/or techniques used in hand and upper extremity therapy
- Outstanding research with outcomes evidence to support hand and upper extremity therapy treatment
- Contributions to hand and upper extremity therapy development as a profession and to ASHT
- Contributions to the specialty of hand and upper extremity rehabilitation and/or healthcare not related to ASHT, specifically the candidate's contributions to public service and/or awareness of hand and upper extremity therapy

The nomination is open to all Active ASHT members in good standing for at least five years. The honorary lecture is announced at the Annual Meeting and given at the following year's meeting.

NATHALIE BARR LECTURESHIP RECIPIENTS

2023 Cindy Ivy, M.ED, OTD, CHT
2020 Kristin Valdes, OTD, OTR, CHT
2019 Corey McGee, PhD, OTR/L, CHT
2018 Jane Fedorczyk, PT, PhD, CHT
2017 Terri Skirven, OTR/L, CHT
2016 Rebecca Neiduski, PhD, OTR/L, CHT
2015 Caroline Stegink-Jansen, PT, PhD, CHT
2014 Karen Pettengill, MS, OTR/L, CHT
2012 Paul LaStayo, PT, PhD
2010 Maureen Hardy, MS, PT, CHT
2009 Karen H.P. Lauckhart, MA, PT, CHT
2008 Susan Michlovitz, PT, PhD, CHT
2007 Donna Breger Stanton, MA, OTR/L, CHT, FAOTA
2006 Patricia Taylor, PT, CHT
2005 Joy MacDermid, BScPT, PhD
2004 Jim King, MA, OTR
2003 Janet Waylett-Rendall, OTR, CHT
2002 Lynnlee Fullenwider, OTR/L, CHT
2001 Georgiann Laseter, OTR, FAOTA, CHT
2000 Jean Casanova, OTR, CHT
1999 Judith Colditz, OTR/L, CHT, FAOTA
1998 Mark T. Walsh, PT, MS, CHT
1997 Anne Callahan, MS, OTR/L, CHT, CLT
1996 Roslyn B. Evans, OTR/L, CHT
1995 Carolina S. deLeeuw, MA, OTR
1994 Kenneth Flowers, PT, CHT
1993 Nancy Cannon, OTR, CHT
1992 Bonnie L. Olivett, OTR, CHT
1991 Mary C. Kasch, OTR, CVE, CHT
1990 Gloria DeVore, OTR
1989 Elaine E. Fess, MS, OTR, FAOTA, CHT
1988 Judith A. Bell-Krotoski, OTR, FAOTA, CHT
1987 Maude Malick, OTR
1986 Evelyn J. Mackin, PT

AWARDS

PAUL BRAND AWARD

The **Paul Brand Award** recognizes individuals who have exemplified humanitarianism in their work as a hand therapist in addition to providing clinical and professional excellence in several facets of practice. The candidate for this award is one who strives for the advancement of hand and upper extremity therapy, which may include underserved areas nationally and/or internationally.

The nomination is open to all Active, Lifetime, Associate and Affiliate members of ASHT in good standing for a minimum of five consecutive years including the year nominated.

PAUL BRAND AWARD RECIPIENTS

2022 Celeste Freeman, OTR/L, CHT
2020 Cynthia Cooper, MFA, MA, OTR/L, CHT
2017 Melissa C. Thurlow, MBA, OTR/L, CHT
2015 Ginny Gibson, OTD, OTR/L, CHT
2014 Rebecca Neiduski, PhD, OTR/L, CHT
2011 Caroline Stegink-Jansen, PT, PhD, CHT
2010 J. Martin Walsh, OTR/L, CHT
2007 Pamela Silverman, OTR, CHT
2006 Lynn Bassini, MA, OTR, CHT
2005 Nancy Chee, OTR/L, CHT; Linda Lehman, MPH, OTR
2004 Dorit Aaron, MA, OTR, CHT, FAOTA
2003 Shrikant Chinchalkar, BScOT, OTR, CHT
2002 Judith A. Bell-Krotoski, OTR, FAOTA, CHT

MACDERMID LIFETIME SCIENTIFIC AWARD IN HAND THERAPY

The **MacDermid Lifetime Scientific Award in Hand Therapy** recognizes an ASHT member who has made contributions through research to the science and practice of hand and upper extremity rehabilitation, which have subsequently changed hand and upper extremity therapy professional standards. The award is announced at the ASHT Annual Meeting. The recipient of the award will present his/her research contributions during the MacDermid Lectureship at the following year's Annual Meeting.

This nomination is open to ASHT members in good standing who have demonstrated career-long research-related endeavors that have had a lasting and transformative impact on the science and practice of hand and upper extremity therapy.

MACDERMID LIFETIME SCIENTIFIC AWARD IN HAND THERAPY RECIPIENTS

2023 Kristin Valdes, OTD, OTR/L, CHT
2013 Joy MacDermid, PT, PhD

ASHT HALL OF FAME

The **ASHT Hall of Fame** recognizes hand and upper extremity therapists who have reached the pinnacle of excellence in all areas of hand therapy. The areas identified for excellence include clinical practice, research, advocacy, education, international involvement and innovation, but this may evolve as hand and upper extremity therapy continues to evolve.

The nomination is open to former hand and upper extremity therapists currently retired from the profession. Nominees must be former (or current Retired) ASHT members with previous volunteer and leadership experience within the Society.

ASHT HALL OF FAME

Susan Michlovitz, PT, PhD, FAPTA (2022)
Donna Breger Stanton, OTD, OTR/L, FAOTA (2021)
Judy Bell-Krotoski, OTR, FAOTA, CHT (2020)
Margaret Carter Wilson, OTR, CHT (2020)
Mary Kasch, OTR, CVE, CHT (2020)
Evelyn Mackin, PT (2020)
Bonnie Olivett, OTR, CHT (2020)
Karen Prendergast Lauckhardt, MA, PT, CHT (2020)

JOURNAL OF HAND THERAPY FIRST-TIME WRITER'S AWARD

This award recognizes a first-time writer's contribution to evidence that supports the hand and upper extremity therapy profession.

JOURNAL OF HAND THERAPY FIRST-TIME WRITER'S AWARD RECIPIENTS

2022 Mary Whitten, DHSc, MOT, CHT
2021 Alice Orts Hansen
2020 Shirley J. F. Collocott, MHSc
2019 Sandy C. Takata, OTD, OTR/L
2018 Burcu Dilek, PhD, PT
2017 Hector Gutierrez-Espinoza, MD
2016 Ahmad Zamir Che Daud, PhD (Aus), BSc. Hons (UK), Dip (Mal)
2015 Ulrika Wijk, OT, MSc
2014 Betty Smoot, PT, DPTSc
2013 Christos Karagiannopoulos
2012 Benjamin Boyd, PT, DPTSc, OCS

BEST GRASSROOTS EFFORT AWARD

The Best Grassroots Effort Award recognizes an ASHT member or group's (e,g, state association, hospital system, academic institution, etc.) passionate and consistent involvement in governmental affairs at the national, state and/or local level during that calendar year.

Nominees for the Best Grassroots Effort must be either an Active ASHT member or an Affiliated Group (that includes at least one active ASHT member for at least two years).

BEST GRASSROOTS EFFORT AWARD RECIPIENTS

2022 Mary Barnes, MOT, CHT, CIND

EMERGING HAND THERAPIST AWARD

The Emerging Hand Therapist Award will address the issues and achievements faced by Certified Hand Therapists within the first five years of initial HTCC certification as they begin in their specialty careers.

Nominees for the Emerging Hand Therapist Award must be an Active member in good standing of ASHT for at least three years.

EMERGING HAND THERAPIST AWARD RECIPIENTS

2022 Macyn Stonner, OTD, OTR/L, CHT

GENERAL INFORMATION

IN-PERSON SCHEDULE OF ACTIVITIES

ONSITE REGISTRATION HOURS

LOCATION: MIDWAY EAST

Thursday, September 26	6:30 AM – 7:00 PM
Friday, September 27	6:00 AM – 6:00 PM
Saturday, September 28	6:30 AM – 7:00 PM
Sunday, September 29	7:00 AM – 11:30 AM

ONSITE SPEAKER READY ROOM HOURS

LOCATION: CONDUCTOR ROOM

All presentations must be pre-loaded onto the network computer system. Presentations can be uploaded before you leave for St. Louis. Please be sure to check in at the Speaker Ready Room at least 4 hours before your presentation time.

Thursday, September 26	7:00 AM – 7:00 PM
Friday, September 27	7:00 AM – 6:00 PM
Saturday, September 28	6:45 AM – 6:00 PM
Sunday, September 29	7:00 AM – 10:30 AM

CHILDREN AND THE ASHT ANNUAL MEETING

The ASHT Annual Meeting is a professional, scientific meeting. ASHT does not permit anyone under the age of 18 to attend Pre-Conference Institutes, plenary, instructional concurrent, scientific and poster sessions, exposition and social events. For safety reasons, only registered exhibitors and poster presenters are permitted in the exposition/poster hall during set-up and take-down hours. Anyone 18+ must register and buy applicable individual tickets if not attending/registering as a student.

ELECTRONIC DEVICES

As a courtesy to other meeting attendees, please turn off or silence all electronic devices during all workshops, sessions and presentations.

EVENT PHOTO/VIDEO WAIVER

For good and valuable consideration, the receipt of which is hereby acknowledged, I grant to American Society of Hand Therapists and those acting under its permission or authority (collectively, "ASHT"), the irrevocable royalty-free right and permission to record, copy, publicly display, publicly perform, publish, modify, use and reuse my voice, image, photograph, portrait, likeness, and biographical information, including portions, composites, likenesses or distortions or alterations of same ("Likeness"), made during or in connection with my attendance of this ASHT Annual Meeting, for use in any Materials to be shown in all media now known or hereafter devised, for an unlimited term. I acknowledge that all such Materials are the property of ASHT as a work made for hire (or, if not, then I assign all of my rights in and to the Materials to ASHT), and that I will not receive any compensation as a result of any use of my Likeness in such Materials. I waive any right to inspect or approve the finished Materials, and release, waive and agree not to make any claim against ASHT in connection with any use of the Likeness, including, without limitation, any claim that such use invades any right of privacy, publicity and/or personality, defamation, libel, moral right, and any other personal and/or property right under the law of any country or jurisdiction. This agreement shall inure to the benefit of and shall be binding upon the parties' respective successors, licensees, assigns, heirs and personal representatives, and cannot be amended except by written agreement.

ONSITE EXHIBIT HOURS

LOCATION: MIDWAY WEST

**Dedicated hall hours (does not compete with educational sessions)*

Thursday, September 26	
*Welcome Reception	7:00 PM – 9:00 PM
Friday, September 27	**9:30 AM – 6:00 PM**
*Morning Coffee Break	10:15 AM – 10:45 AM
Lunch	12:00 PM – 1:30 PM
*Afternoon Coffee Break	4:45 PM – 5:15 PM
Saturday, September 28	**9:30 AM – 3:00 PM**
*Morning Coffee Break	10:00 AM – 10:30 AM
Lunch	12:45 PM – 2:45 PM

ONSITE E-POSTER

E-Posters kiosks will be available in the Exhibit Hall located in Midway West. Personal headphones and styluses were provided to each attendee. *There will be no physical posters for presentation.*

Designated e-Poster hours:

Thursday, September 26	
Welcome Reception	7:00 PM – 9:00 PM
Friday, September 27	
Morning Coffee Break	10:15 AM – 10:45 AM
Lunch	12:00 PM – 1:30 PM
Afternoon Coffee Break	4:45 PM – 5:15 PM
Saturday, September 28	
Morning Coffee Break	10:00 AM – 10:30 AM
Lunch	12:45 PM – 2:45 PM

In accordance with the Department of Health and Human Services' decision to expire the Public Health Emergency for COVID-19 starting May 11, 2023, ASHT will not require a specific vaccination status for attendees of the 2024 Annual Meeting, and masks will be optional. Masks are encouraged for those in recent close contact with someone with COVID-19. Attendees who are experiencing symptoms or have tested positive for COVID-19 are strongly encouraged to forego the meeting.

ASHT reserves the right to modify this policy if the COVID-19 Public Health Emergency status changes at any time.

GENERAL INFORMATION

ASHT ON-DEMAND PLATFORM

Virtual and in-person attendees have access to the on-demand platform. Please note the following deadlines and dates content will be available:

KEY INFORMATION

- The platform will automatically keep track of the sessions you view.
- All attendees can submit session evaluations and retrieve their CE certificate through the on-demand platform.
- **All attendees must retrieve their CE certificate by January 31, 2025.**
- The ASHT on-demand platform will be available through September 1, 2025.

Clinical Practice & Scientific e-Posters
September 12, 2024 – September 1, 2025

Exhibitor Virtual Directory
September 12, 2024 – September 1, 2025

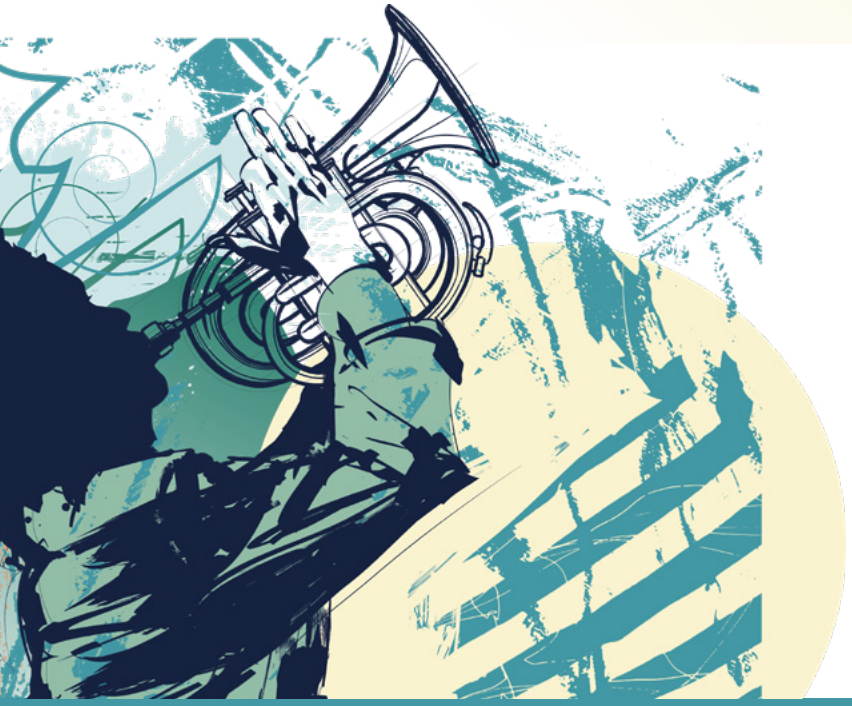
On-Demand Instructional Sessions
October 11, 2024 – September 1, 2025

In-Person CEU Evaluation and Certificate Portal
September 29, 2024 – January 31, 2025

Virtual CEU Evaluation and Certificate Portal
October 11, 2024 – January 31, 2025

VIRTUAL EXHIBITOR DIRECTORY

The virtual exhibitor directory encompasses ASHT's 2024 Annual Meeting exhibitors and sponsors. Check-out our industry supporters and get the latest on their products and services. The exhibitor directory can be accessed in the on-demand conference platform starting September 12, 2024 through September 1, 2025.



WI-FI INFORMATION

ASHT is happy to provide Wi-Fi in all of the meeting space at the St. Louis Union Station Hotel. To log in to the Wi-Fi on site, please use the following information:

NETWORK:
Curio Meeting

PASSWORD:
1820

Make the Most of Your Conference Experience with the **ASHT 2024 Annual Meeting Mobile App!**

Take Notes | Create & Share Schedules | Personal Summary | Social Features

1. Download the ASHT Events App

Scan the QR Code or go to the Apple App Store or Google Play and search for **ASHT Events**

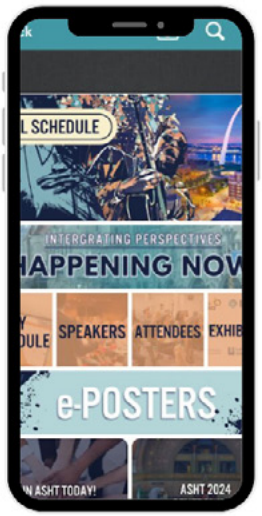
App Icon

Install and open the app. Find your event icon in the Upcoming Events (bottom row) or search for **ASHT 2024.**

Event Icon

Tap the event icon to launch your event's app.

2. Log in to the App



Username: Email address used for registration

Password: Registration ID (in registration confirmation email and on your badge)

3. App Tips

Download the app before you go!

Browse the event information and create a personal schedule by tapping on the star next to presentation titles.

If you see the 2023 app, click on the 3 bars in the upper right hand corner. Click on 'Choose Other Event'. Click on the 2024 App Icon.

GENERAL INFORMATION

OVERVIEW

The American Society of Hand Therapists (ASHT) is proud to present its 47th Annual Meeting. The 2024 program will emphasize evidence-informed practice for rehabilitation of the hand and upper limb. Presented by distinguished faculty known regionally, nationally and internationally, the format and content will encourage the exchange of new scientific and clinical information to facilitate best practice and improve patient outcomes in hand and upper extremity therapy. The program includes topics such as:

- Novel scientific research in platform and poster sessions
- Hand and upper extremity therapy practice considerations – reimbursement, legislation, regulation and advocacy
- Clinical topics covering relevant anatomy, surgery and updated rehabilitation strategies

LEARNER OBJECTIVES

Upon the completion of the Annual Meeting, participants will be able to:

- Integrate hand and upper limb treatment plans based on evidence, research and instruction.
- Construct new strategies and clinical ideas to improve patient outcomes through interdisciplinary collaboration.
- Employ innovative treatment ideas into clinical practice for a variety of clinical conditions.
- Discuss and implement current legislative and regulatory policies into clinical practice.
- Discuss and implement leading business and operational practices into clinical practice.

TARGET AUDIENCE

ATC – Certified Athletic Trainer
COTA – Certified Occupational Therapy Assistant
OT – Occupational Therapist
PT – Physical Therapist
PTA – Physical Therapy Assistant

INSTRUCTIONAL LEVEL

Entry
Intermediate
Advanced

PREREQUISITES

None

ABSTRACTS

Selected abstracts will be presented at the Annual Meeting during the plenary scientific sessions and throughout the conference via the e-Poster kiosks. These abstracts will highlight the most outstanding papers from a variety of subspecialties relating to hand and upper extremity therapy. Selected abstracts will be published in the *Journal of Hand Therapy*, the official journal of ASHT.

EXHIBITS

Educational and informational exhibits will be available to visit in the exhibit hall during the ASHT Annual Meeting. Representatives will be on hand to answer questions and discuss their innovative products. An exhibitor directory is posted on the conference website and mobile app. Please explore the exhibits as they are an integral part of the meeting

CONFERENCE SYLLABUS

Session handouts for the ASHT Annual Meeting will be available to registered attendees through the ASHT 2024 Annual Meeting Mobile App. All session materials are the original works of the speakers, and reproduction or use of these materials must be cited in any personal use.

PLEASE NOTE: While speakers are encouraged to provide handouts, it is NOT a requirement. Not all sessions will have handouts based on the speakers' choice.

SHARE THE gLOVEs

This year, ASHT is partnering with **All Nanna's Kids Closet** for our **Share the gLOVEs** drive. All Nanna's Kids Closet is a non-profit in St. Louis. They are committed to providing coats to families with children, schools and the homeless shelters. All children should live as normal a life as possible; families should be productive in their communities and the homeless should be provided warmth. All Nanna's Kids Closet provides these necessities through our coat program, Cold No More. Children infant to high school receive new coats, hats, gloves and socks for free.

GENERAL INFORMATION

CONTINUING EDUCATION INFORMATION

COURSE ACCREDITATION

This continuing education activity offers a maximum of 29.25 continuing education hours or 2.925 CEUs.

- Annual Meeting Educational Program – 21.75 CE Hours
- Pre-Conference Institutes (ticketed event for in-person attendees only) – 4 CE hours
- AHTF Scholar Lecture (ticketed event) – 1 CE hour
- Pediatric Specialty Day (ticketed event) – 6.5 CE hours

OCCUPATIONAL THERAPISTS

AOTA American Occupational Therapy Association Approved Provider

The American Society of Hand Therapists is an approved provider of continuing education by the American Occupational Therapy Association (AOTA). The assignment of AOTA CEUs does not imply endorsement of specific course content, products or clinical procedures by the AOTA.

PHYSICAL THERAPISTS

The New York State Education Department of Physical Therapy recognizes ASHT as an approved provider of PT and PTA continuing education.

Continuing education requirements are regulated by the state boards of physical therapy. Each state licensing board has its own policies and procedures related to continuing education of its licensees. State boards of physical therapy place the responsibility on licensees to follow rules and regulations related to the practice of physical therapy and maintenance of licensure in their states. Licensees should verify acceptance of continuing education courses with their state licensing board by reviewing the relevant state practice act and/or administrative code.

Should you use the ASHT 2024 Annual Meeting in your state physical therapy recertification process, ASHT will reimburse up to $200** of the cost of the application. Please send ASHT a copy of your state physical therapy continuing education application to receive this reimbursement. Additionally, ASHT will supply on request, a continuing education packet containing all generally accepted required documentation. Please contact ASHT at meetings@asht.org or call 856-380-6856 for more information.

**This reimbursement applies only to the first person to apply within each state. Subsequent applicants will not be charged by their state for filing.

PLEASE NOTE: State accrediting agencies may change the number of contact hours awarded for an independent study course.

CERTIFIED HAND THERAPISTS

CERTIFIED HAND THERAPIST

All content of this course is accepted as Category A credit toward recertification by the Hand Therapy Certification Commission.

MAINTENANCE OF LICENSURE AND/OR CERTIFICATION

To enter the professional development hours, you have earned for the ASHT Annual Meeting:

- Go to the HTCC website, www.htcc.org.
- On the HTCC homepage, under the Recognized Specialist in Hand Therapy banner (upper right corner), click CHTs Login Here.
- Enter your CHT ID# and your password in the login field (this may be your CHT number again or a password you created) and click Enter. Your CHT ID# will always be used in the login field. Your CHT ID# is 10 digits long.
- Once logged in to "CHTs Only," click "Enter Professional Development Hours" and then click "Category A: Formal Courses in Upper Quarter Therapy, Greater Than 3 Hours."
- Enter your Professional Development hours onto the form and then scroll to bottom of page and click "Submit" to capture your information
- Email or fax the certificate to HTCC at 866-329-1476 toll free, (international attendees 916-922-0210) or email your certificate to info@htcc.org. If you have any questions, please contact HTCC at info@htcc.org.

Credits will be awarded based on the date printed on the CE Certificate. For instance, if an individual's renewal cycle is 01/01/2021 to 11/15/2026 and the CE transcript and certificate is completed on 01/31/2025, all of the CE hours will be applied to that renewal cycle.

ATHLETIC TRAINERS

APPROVED CE PROVIDER • BOC • FOR THE ATHLETIC TRAINER

The American Society of Hand Therapists is recognized by the Board of Certification, Inc. to offer continuing education for Certified Athletic Trainers.

GENERAL INFORMATION

CONTINUING EDUCATION INFORMATION

OBTAINING CEUS

CE certificates should be obtained/printed by January 31, 2025. After the meeting, attendees will receive directions to create their CE transcript. Attendees will also be able to provide feedback to speakers of the sessions they attended. Questions can be directed to meetings@asht.org.

Participants must:

1. Have paid the registration fee
2. Attend their chosen sessions in their entirety
3. Complete an online evaluation form after the conference. CE certificates will be available immediately upon submission of evaluation form. Attendees should only claim credit commensurate with the extent of their participation in the activity

ONLINE EVALUATION & CE CERTIFICATE SITE

Complete your evaluation and certificate paperwork all in one site. Attendees can access the CE portal directly through the on-demand platform to claim credit for sessions participated in, evaluate sessions and submit overall meeting conference feedback.

Once you evaluate all sessions you wish to claim credit for, you can print a certificate.

- If you only wish to collect a certificate in 2025, you will need to wait until January 1, 2025 to evaluate sessions attended.
- You may only complete each session evaluation once, so please do not proceed until you have completed your participation for each certificate cycle.
- The conference platform will automatically keep track of the sessions you watched.

In-person attendees should keep record of the sessions attended.

Note: The evaluation system will give you credit only for the total elapsed time spent in education sessions. Credit cannot be doubly awarded for sessions taking place in the same Instructional Concurrent Session block, this also applies to virtual attendees. Categories not eligible are: Non-medical, Exhibitor and Exhibits.

DISCLOSURE STATEMENT

All contributors who can affect American Society of Hand Therapists continuing education content (including leadership, program committee, faculty members, moderators and staff), in their respective roles, are required to disclose all relevant financial relationships with any commercial interest that could be viewed as a real or perceived conflict of interest. This policy is in effect to maintain adherence with the conflict of interest guidelines set by American Occupational Therapy Association Approved Provider Program, the Board of Certification, Inc. for Athletic Trainers and the Federation of State Boards of Physical Therapy. Attendees will be made aware of any affiliation or relevant financial interest that may affect the development, management, presentation or evaluation of the CE activity and will be printed in the final program and projected in slide format before each presentation. Individuals who refuse to disclose relevant financial relationships will be disqualified from being a contributor, and cannot have control of, or responsibility for, the development, management, presentation or evaluation of the CE activity.

TAX INFORMATION

As a 501(c)(3) organization, the national dues or education registration fees are not deductible as a charitable contribution for federal tax purposes; however, they may be deductible as ordinary business expenses. Please consult your financial advisor.

ACCESSIBILITY SERVICES

The American Society of Hand Therapists wishes to take steps to ensure that no individual with accessibility needs is excluded, denied services, segregated or otherwise treated differently than other individuals because of the absence of auxiliary aids or services. If you need any auxiliary aids or services identified in the Americans with Disabilities Act, or any assistance in registering for this conference, please contact ASHT Meetings Staff at meetings@asht.org.

As is our policy, it is the responsibility of the attendee to make any accessibility needs known prior to attendance at the conference. Advance notification provides ASHT adequate time to ensure that it can arrange for requested services.

ADDITIONAL EVENTS

(Receptions, Committee/Division Meetings, Ticketed Events)

DATE	TITLE	PROGRAM TIME	LOCATION
Thursday, September 26	Welcome Reception	7:00 PM - 9:00 PM	Midway West
Friday, September 27	Let's Be New Together: First-Time Attendee, New Member & Student Networking Breakfast	7:00 AM - 7:45 AM	Regency C
Friday, September 27	Hand Therapy Certification Commission: Preparing for the CHT Exam	12:00 PM - 1:15 PM	Regency C
Friday, September 27	Outreach Division Meeting	12:00 PM - 1:30 PM	Midway Suites 1-2
Friday, September 27	Leadership Development Committee Meeting	12:00 PM - 1:30 PM	Midway Suites 3-4
Friday, September 27	Research Division Meeting	12:00 PM - 1:30 PM	Midway Suites 11
Friday, September 27	Hands-on Demo Sponsored by Essity	12:30 PM - 1:00 PM	Regency AB
Friday, September 27	AHTF Fundraiser - Happy Hour with the Scholar (ticketed event)	6:30 PM - 8:00 PM	Grand ABC
Friday, September 27	ASHT Night Out Event (on your own)	8:00 PM	
Saturday, September 28	Breakfast Symposium Sponsored by Allard	6:30 AM - 7:30 AM	Grand ABC
Saturday, September 28	International Luncheon: Breaking Barriers to International Volunteerism	12:45 PM - 2:45 PM	Regency C
Saturday, September 28	AOTF: Advancing the Science of Occupational Therapy, Strengthening Practice Through Philanthropy and Research	1:00 PM - 2:00 PM	Regency AB
Saturday, September 28	Education Division Meeting	12:45 PM - 2:45 PM	Midway Suites 1-2
Saturday, September 28	Practice Division Meeting	12:45 PM - 2:45 PM	Midway Suites 3-4
Saturday, September 28	Student Meet-Up	1:00 PM - 2:30 PM	Midway Suites 6
Saturday, September 28	St. Lou-a-Palooza (ticketed event)	7:00 PM - 10:00 PM	Delmar Hall (Off-site)

THURSDAY, SEPTEMBER 26

8:00 AM – 4:00 PM | **Pediatric Specialty Day (Ticketed Event) 6.5 CE HOURS**

8:00 AM – 8:15 AM | **Welcome**

REGENCY AB

Peggy Faussett, MOTR/L, CHT, 2024 Pediatric Specialty Day Co-Chair
Lindsey Williams, OT, CHT, 2024 Pediatric Specialty Day Co-Chair
Aviva L. Wolff, EdD, OTR, CHT, 2023-2024 ASHT President

8:15 AM – 9:15 AM | **Learning Session**

REGENCY AB

Flipping Into the World of Gymnast's Wrist
Savana Ashton, MOT, OTR

The rise in popularity of the sport of gymnastics calls for further examination of the injuries often associated with the sport. Gymnast's wrist, or distal radial epiphysitis, is one of the most common overuse injuries that affect young gymnasts and can ultimately lead to discontinuation of the sport. For the young athlete, gymnast's wrist can be a lengthy and daunting treatment process, and for the treating therapist, it can be a confusing diagnosis to navigate, especially when considering return to sport. This presentation will dive into the complex world of gymnastics and provide an overview of gymnast's wrist, as well as treatment interventions to consider when working with your next patient with gymnast's wrist.

Spilling the Tea on Proprioception in Teenage Wrist Pain
Cara Smith, PT, DPT, CHT

In pediatric hand therapy, the diagnosis of "wrist pain" is prevalent and therapists must be able to thoroughly evaluate for all potential causes of pain. One such cause of pain is wrist instability. There have been advances in understanding the static and dynamic stabilizers of the wrist and the importance of implementing proprioceptive exercises to address wrist instabilities. In this presentation, a case study will be utilized to discuss evaluation of wrist pain that identified a wrist instability. Proprioception exercises will be discussed, as well as how the patient was progressed through the therapy plan of care.

Objective Measures in Burn Therapy
Nichole Schiffer, MOTR/L, CHT, BT-C, BCP

This session will review objective measures that are validated and utilized in burn therapy to evaluate and measures outcomes. Outcome measures that are validated in the burn population in addition to outcome measures that are commonly utilized by burn and hand therapists will be presented. The speaker will discuss specifications for use of each measure, as well as provide resources for accessing outcome measures.

THURSDAY, SEPTEMBER 26 (CONTINUED)

9:15 AM-10:15 AM — **Collaborating Session**

REGENCY AB

Set Up for Success: Opportunities to Support Patients with Upper Limb Differences Outside of the Clinic
Karen Ayala, MSOT, CHT

This instructional session will explore how the pediatric hand therapist can collaborate with others in the community to impact the life experiences of their patients with upper limb differences. In the educational setting, children with upper limb differences may benefit from accommodations in the classroom to help them keep pace with their peers. The pediatric hand therapist can collaborate with the educational team by providing a letter listing potential accommodations for the child's 504 plan. Outside of the classroom, the pediatric hand therapist can contribute to the multidisciplinary team by volunteering at a camp for children with limb differences and their families. Personal experience will be shared based on this therapist's role as a volunteer for Camp No Limits. Lastly, the importance of connecting families of children with limb differences will be highlighted by describing a local support group in Austin, TX. Inclusion of the lived experience will be illustrated with a video of a local support group participant sharing their perspective on growing up with an upper limb difference.

Review of Hypermobility Spectrum Disorder CPG and Treatment
Carrie Shotwell, OTR/L, MEd, DHS

This informational session will review most recent diagnostic criteria for HSD and hEDS, including current nomenclature. It will also review the most recent evidence-based practice guideline (it should be finished/published by the time of the conference), including recommendations for multi-disciplinary care.

What Happens When Our Kids with Congenital Hand Differences Become Adults?
Amy Lake, OTR, CHT

This talk will discuss typical issues adults with pediatric hand differences face as they age, as well as the difficulty with getting seen by doctors and therapists who understand their abnormal anatomy. It will expose the gap in treatment as children with congenital anomalies age out of pediatric hospitals equipped with support, understanding and expertise in their care and into the real world with doctors and therapists who mainly treat patients with typical anatomy. This talk will identify the need for more education on pediatric congenital conditions with our adult-trained hand surgeons and therapists.

10:15 AM – 10:30 AM — **Break**

THURSDAY, SEPTEMBER 26 (CONTINUED)

10:30 AM – 11:30 AM — **Innovating Session**

REGENCY AB

Humeral External Rotation Orthosis Strap: A Less Prohibitive, Shoulder Positioning Orthosis for Brachial Plexus Birth Injury
James H. Northcutt II, OTR, MOT, CHT

The presentation will introduce the HERO Strap, an innovative solution to combat maladaptive glenohumeral development in infants with BPBI. A "how-to" section will walk through obtaining supplies, fabricating and applying the strap with key aspects being highlighted. We will compare preliminary, retrospective clinical and radiographic data for patients prescribed various orthosis solutions over the past six years (e.g. SupER Splint, Gunslinger, and HERO Strap). Finally, we will demonstrate the HERO Strap on a patient via video examples.

What Does A Pediatric Flexor Tendon Protocol Look Like? (Presenting the Use of Early Controlled Motion with Appropriate Young Patients)
Yvonne Doreen Morris, Dip COT, OTR, CHT

Early controlled motion is a well-established hand therapy intervention in the postoperative treatment of adult flexor tendon injuries. This presentation outlines a therapy protocol that uses an evidence-based, child friendly, phased approach to safely treating pediatric flexor tendon repairs, using the principles of early controlled motion.

Impact of Sports-Related Upper Extremity Injuries on Occupations of Elementary-Aged Children
Reeti Douglas, OTD, OTR/L

The increase in sports participation over recent years has contributed to an increase in physical activity levels among youth and adolescents. The increase in physical activity has increased the risk for sport-related injuries specifically of the upper extremity due to repetitive stress and improper technique. Because of the gap in the literature related to sports-related upper extremity injuries acquired by elementary-age children, we decided to conduct a quantitative study to collect data from parents of elementary-age children who have sustained a sports-related upper extremity injury. Data is being acquired and analyzed regarding how daily occupations are impacted by children's upper extremity sports injury. Hand therapists and occupational therapists have a distinctive skillset and role in treatment of upper extremity sports injuries. They are not only skilled at addressing return to sports, but are also trained in addressing children returning to their daily occupations including leisure, activities of daily living (ADLs) and school. Our research study focuses on the occupations that are affected by sports-related upper extremity injuries in elementary-age children and aims to advocate for the importance of hand therapists and occupational therapists with pediatric athletes.

11:30 AM - 12:00 PM — **Research Session**

REGENCY AB

Integrating Perspectives to Elevate Evidence for Pediatric Hand Therapy Practice
Jenny Dorich, OTR/L, PhD, MBA, CHT

In this session, an overview of ways therapists may contribute to research in pediatric hand therapy will be discussed. Audience members will participate in identifying future research priorities for pediatric hand therapy.

12:00 PM – 1:00 PM — **Lunch**

REGENCY C

THURSDAY, SEPTEMBER 26 (CONTINUED)

1:00 PM - 1:50 PM	Keynote Speakers
REGENCY AB	**Innovate, Collaborate and Empower: Developing a Transformative Model of Care for Children with Upper Limb Differences** Emily S. Ho, PhD, OT Reg. (Ont.) Kristen Davidge, MD, MSc, FRCS(C) The increasing challenges of access to care, staffing and costs of healthcare demands that we innovate new models of care to provide care to optimize patient and systems level outcomes. In this presentation, we will present a new model of care has been implemented at the Hospital for Sick Children (SickKids) in Toronto, Canada that expands the role of an occupational therapist in the pediatric hand and upper limb program. An Occupational Therapy (OT) Practitioner role was created to improve access and quality of care for patients with non-surgical congenital hand and upper limb differences to reduce surgeon workload, streamline services and provide holistic management of the child and family. The benefits of this new role and model of care in facilitating timely diagnosis and access to care, timely referrals for hand therapy and psychosocial support and improved coordination and delivery of services to community care therapy providers will be presented.
1:50 PM – 2:00 PM	**Transition Break**
2:00 PM - 2:55 PM	**Breakout Session 1**
REGENCY C	**Upper Extremity Serial Casting: Hand-on Lab** Carrie Shotwell, OTR/L, MEd, DHS Jenny Dorich, OTR/L, PhD, MBA, CHT Serial casting can be an effective way to reduce the severity of wrist contractures in children with spasticity, particularly when paired with botulinum neurotoxin A. We will review case studies and discuss when a serial cast may be used versus serial orthoses. We will demonstrate step by step how to make and remove a wrist serial cast during the session.
REGENCY AB	**Flexor Tendon Trauma in the Pediatric Patient** Ashley Pittman, OTR, CHT This session will cover current trends in hand therapy for the treatment of flexor tendon injuries and apply them to the pediatric patient population.
GRAND DEF	**Evaluation and Treatment of the Child with A Brachial Plexus Injury** Yvette Elias, OT/L, CNDT, WCT, CHT Aaron Berger, MD The presentation will review appropriate evaluation tools for the child with an obstetric brachial plexus injury and discuss innovative orthotics for the prevention of glenohumeral joint deformities. It will also share age-appropriate treatment activities.
2:55 PM – 3:05 PM	**Transition Break**

THURSDAY, SEPTEMBER 26 (CONTINUED)

3:05 PM - 4:00 PM | **Breakout Session 2**

GRAND DEF

Evidence-based Practice Themes for Chronic Upper Extremity Paresis from Brain Injury
Todd Levy, MS, OTR/L, CBIST-AP

Clinical practice guidelines and systematic reviews of systematic reviews and RCTs are available to drive the selection of treatment and therapy dose for chronic upper extremity paresis from brain injury. In addition, guides are available to help caregivers understand this information. This body of work is based on studies of children with cerebral palsy of mixed and u (CP)nknown etiology and reflects a wide range of disciplines and perspectives including occupational therapists, physical therapists, kinesiologists and psychologists. This work reveals themes that clinicians can rely on for practical assistance. The themes involve motor learning theory, "active therapies," holistic care and other top-down approaches. This breakout session will guide participants through a maze of terminology and literature (unilateral CP, stroke, hemiparesis, etc.) to draw treatment plans from a wide body of evidence. Splinting recommendations will be covered. The session will present new data showing that the dominant hand of children with "unilateral cerebral palsy" is often impaired. It will discuss how this aligns with the theme of holistic care by using a case study. Finally, the presenter will discuss the role of impairment-based interventions for clinical care and future research.

REGENCY AB

The Role of Therapy with Pediatric Burn Patients for Long-term Scar Management
Nicole Avena, OTR/L

The literature indicates acute and long-term treatment for pediatric burn injuries have significantly improved since the 1960s with changes in available interventions and compression therapy. Pediatric burn injuries provide long-term impacts on the patient and caregivers psychological, social, and emotional wellbeing. Hypertrophic scars within the pediatric population can cause significant complications impacting upper extremity limitations in active and passive range of motion, functional outcomes with activities of daily living, and decreased strength. The participants will gain professional knowledge on the specialized occupational therapy evaluation process, identification of scar appearance (indicated by the Vancouver Scar Scale assessment), and interventions for scar management, such as custom compression garments, scar massage, splinting, and silicone scar sheets/taping.

REGENCY C

Utilizing Soft Cast and Plaster to Increase Passive Range of Motion in Pediatric Hand Therapy
Sarah Schmeda Kothe, OTD, OTR/L, CHT

Have you ever gotten that deer-in-headlights look from a patient and their family after going over a home stretching program? Or have a family struggling with the wear schedule or correctly donning an orthosis to gain passive range of motion? Joint stiffness and soft tissue contractures can be very difficult and sometimes frustrating to treat, especially in pediatric patients. During this presentation, participants will learn the benefits of using plaster and soft cast as a valid and efficient treatment technique to add to their toolbox for treating passive ROM limitations. Benefits such as low maintenance care, the heat properties of the material on the joint and the time spent at end range will be discussed. Patient populations that are appropriate for this technique will be reviewed through case studies, including radial longitudinal deficiency, camptodactyly, Volkman's contracture and arthrogryposis. The session will end with a live demonstrate of the application and removal of soft cast and plaster. Participants will receive a step-by-step guide on how to complete soft cast and plaster in their treatment settings.

THURSDAY, SEPTEMBER 26 (CONTINUED)

12:00 PM – 4:00 PM | **Pre-Conference Institutes (Ticketed Event)** | **4 CE HOURS**

MIDWAY SUITES 6

Introduction to Casting Motion to Mobilize Stiffness (CMMS) for Treatment of the Stiff Hand

Johanna Jacobson-Petrov, MHS, BSc.OT, CHT
Kantessa Stewart, OTR/L, CHT
Karol Spraggs-Young, OTD, OTR/L, CHT
Katie Pisano, OTR/L, CHT
Ann Marie Feretti, EdD, OTR/L, CHT

Your new patient sits before you with a heavily contracted hand. You learn that the trauma and surgery occurred more than six months ago, and you begin to feel overwhelmed. Experience has taught you that standard hand therapy treatment and custom orthotics are not always effective in regaining function in the stiff hand. This pre-conference course will introduce the technique of casting motion to mobilize stiffness (CMMS) as an innovative treatment option for these tough cases. The CMMS technique integrates principles of neuroplasticity, therapeutic exercise and the art of plaster casting to simultaneously address poor CNS movement patterning, fibrotic edema, tissue tightness and joint contractures. Participants will learn to analyze abnormal movement patterns of the stiff hand and will collaborate with fellow attendees to choose the most appropriate CMMS cast position. Opportunities to become familiar with plaster of paris material via application of simple finger or hand-based casts will be offered, as will CMMS case examples and live demonstrations of CMMS cast application and removal. This course will change the way you approach the treatment of the stiff hand and will expand your clinical skills while providing your patients with improved outcomes.

GRAND ABC

The Shoulder Pain Conundrum: A Clinical Framework for Assessment, Differential Diagnosis and Management for the Hand Therapist

Ashim Bakshi, MHS, OTR , CHT

Shoulder pain is a common musculoskeletal condition with a high prevalence in isolation, and/or concomitantly, with other distal symptomologies affecting the elbow and the wrist/hand complex. As upper extremity specialists, it becomes imperative that we screen, assess and treat the entire upper quadrant, taking into consideration the significance of the kinetic chain, and help facilitate an optimal outcome. This lab-based course will provide the discerning hand therapist recent evidence and the necessary tools to critically identify and evaluate the patho-anatomical structures of the shoulder complex, and based on the findings and clinical reasoning, formulate an algorithm of treatment. The hands-on component of the course will include surface anatomy, provocative testing based assessment and manual therapy techniques. We will conclude with thought-provoking and interactive case studies to tie in the various elements of the course.

THURSDAY, SEPTEMBER 26 (CONTINUED)

4:30 PM – 4:45 PM	Welcome
GRAND DEF	Brocha Stern, PhD, OTR, CHT Aviva L. Wolff, EdD, OTR, CHT

4:45 PM – 5:30 PM	Plenary Session 1 | Opening Session .75 CE HOURS
GRAND DEF	**The X-ray Factor: Advancing Hand Therapy with Surgical Perspectives** Daniel A. Osei, MD, MSc Dr. Osei will open this year's ASHT Annual Meeting with a detailed plenary session on the importance of X-rays in diagnosing common hand conditions. He will discuss how to interpret X-rays for common hand injuries, such as distal radius fractures, scaphoid and finger fractures, and thumb CMC osteoarthritis, using real case examples. This session is designed to enhance hand therapists' understanding of the surgical criteria and decision-making processes, fostering better collaboration in patient care.

5:30 PM – 6:15 PM	Plenary Session 2 | Panel Discussion .75 CE HOURS
GRAND DEF	**Joining Hands: Shared Decision Making in Complex Cases** Daniel A. Osei, MD, MSc Mary C. Politi, PhD Emily Altman, PT, DPT, CHT, OCS, CLT, WCC Martin Boyer, MD, FRCS(C) This panel features a multidisciplinary team of experts dedicated to advancing treatment strategies for complex hand injuries and conditions. This panel will include distinguished hand surgeons, an experienced hand therapist, a health psychologist with a focus on shared decision making and a physiatrist, each bringing a unique perspective to the table. Together, they will use specific case examples to explore the nuances of shared decision making in clinical settings. This session aims to highlight the importance of teamwork and patient involvement in developing effective treatment plans, providing attendees with a deeper understanding of integrating diverse expertise for optimal patient outcomes.

THURSDAY, SEPTEMBER 26 (CONTINUED)

6:15 PM – 7:00 PM | **Plenary Session 3 | Therapy Tips** .75 CE HOURS

GRAND DEF

Handy Hints: Quick-Fire Therapy Tips
Bruce Curtis, OT
Antonio Gonzalez-Anaya, OTR/L, CHT
Shari Gorman, OTR/L, CHT
Laurie Humiston, MS, OTR/L, CHT
Abbey Mulder, OTR, CHT, MOT
Tara L. Packham, OTReg(Ont), PhD
Terry Taylor, OTR/L, CHT
Aileen Gavina, PT, DPT

Attend this lively, rapid-fire session to hear colleagues share their best hand therapy tips and tricks, clinical pearls and innovative practices. This fast-paced session is designed to energize and inspire, as presenters share practical and inventive strategies that can be immediately implemented in clinical settings. Whether you're looking to refine your techniques or discover fresh approaches, this session promises a treasure trove of valuable insights directly from your peers in the field. Prepare to take notes and bring home a wealth of knowledge to enhance your practice!

7:00 PM – 9:00 PM | **Welcome Reception**

MIDWAY WEST

The Welcome Reception is a perennial highlight of the ASHT Annual Meeting! Come to support our exhibitors, learn about innovative technologies and products and network with old and new colleagues. While there are no longer physical posters displayed during this reception, this is still a wonderful opportunity to check out the e-Posters on the digital kiosks in the Exhibit Hall. Both Scientific Posters and Clinical Practice Posters will be available for digital viewing.

FRIDAY, SEPTEMBER 27

7:00 AM – 7:45 AM | **Let's Be New Together Breakfast**

REGENCY C

First-Time Attendees, New Members & Student Networking Breakfast
Christine Eddow, PT, PhD, DPT, OCS, WCS, CHT, CLT
Robert McClellan, OTR/L, CHT, COMT-UL

Kick off your Friday together with those who are new to hand therapy, to ASHT and/or to the Annual Meeting! This breakfast is open to everyone, but may be especially valuable for early-career therapists, students, new ASHT members and first-time conference attendees. If you are new to ASHT or the Annual Meeting, this is a great opportunity to learn more about what you can gain from the society and the meeting. If you are an experienced Annual Meeting attendee, come to welcome and support those who are new to our community!

FRIDAY, SEPTEMBER 27 (CONTINUED)

8:00 AM – 9:00 AM | **Instructional Concurrent Session 1** | **1 CE HOUR**

REGENCY C

Stronger Together: A Collaborative Approach to Intervention Planning for Patients with Upper Extremity Neuromotor Impairment

Jenny Dorich, PhD, MBA, OTR/L, CHT
Emily S. Ho, PhD, OT Reg. (Ont.)
David Clark, MScOT, OT Reg. (Ont.)
Dalia Ebeda, MScOT, B.Sc.
Andrea Chan, MD

Children and adults with upper extremity neuromotor impairment may benefit from reconstructive procedures to prevent progression of and/or correct contractures, improve motor function and enhance upper extremity activity and participation. Individuals with neuromotor conditions may be referred to hand surgeons and hand therapists during childhood or adulthood. Individualized care and transitional clinical strategies are paramount for intervention planning as patient disease severity and goals vary/evolve at all life stages. A collaborative interdisciplinary approach is best used to identify candidacy for intervention because neuromotor upper extremity functional limitations commonly have multiple underlying factors including muscle tone abnormalities, muscle imbalances, joint disturbances and central nervous system-based limitations, such as limited awareness of the affected upper extremity. Hand therapists perform an integral role in assessing patients for surgical consultation, determining shared goals and intervention planning. This interactive lecture session will provide an overview of the common upper extremity surgical interventions for this population. A case-based approach will be used to provide an overview of clinical assessments, outcome measures and the indicators for reconstructive intervention. A framework for collaborative interdisciplinary assessment and intervention planning alongside goal setting with the patient and family will be presented. Presenters will utilize case discussion with course attendees to facilitate application of principles presented in this session.

GRAND DEF

Complicated PIP Injuries: A Collaborative Approach Between the Surgeon and Hand Therapist

Sarah Schroeder, MOTR/L, CHT
Alexander Kelsheimer, DO

The purpose of this course is to discuss various PIP injuries and the role of a surgeon/therapist collaborative relationship in optimizing patient outcomes. Various case studies will be presented by the surgeon, who will discuss intervention decisions, the surgical procedure and preferred protocols. Follow-up therapeutic discussion will include clinical pearls and treatment approaches associated with each case. Throughout the course, there will be opportunities for interactive attendee participation and group discussion for various treatment ideas that have proven to be successful in individual practices. The collaborative discussion will provide opportunities to identify red flags early in recovery and offer alternative treatment options to redirect the course of treatment for improved functional results.

FRIDAY, SEPTEMBER 27 (CONTINUED)

REGENCY AB

Update on Early Motion for Complex Hand Injuries
Rebecca Saunders, PT, CHT

This instructional course will review current concepts about early motion for complex injuries of the hand. The course will include principles of surgical and therapy management, which will be illustrated through lecture and case presentations. Topics discussed will include early motion for replantations, intra-articular fractures, complex fractures and soft tissue reconstructions, including single-stage delayed flexor tendon reconstructions.

GRAND ABC

The Science and Art of Measurement in Hand Therapy
Gwen Weinstock-Zlotnick, PhD, OTR/L, CHT
Tara L. Packham, OTReg(Ont), PhD
Corey McGee, PhD, MS, OTR/L, CHT

Routine measurement of patient outcomes is critical for delivering high quality care to individual patients, as well as demonstrating and improving the value of our services. There is a wide range of available measures that may be relevant for hand therapy patients. For example, measures can assess physical impairments or limitations in activity and participation, they may be patient-reported or performance-based, they may be generic or specific to a condition or body region, or they may include fixed items or be personalized. Selecting measures to use in the clinic can be overwhelming and requires both an understanding of the science of measurement properties and the art of aligning measures with the patient presentation, the patient's needs and goals and potentially regulatory or payer requirements. This session will provide a practical overview of specific measurement properties that hand therapists should understand in order to guide measure selection. It will also describe advantages and disadvantages of specific types of measures to help therapists critically select measures in the clinic.

9:00 AM – 9:15 AM **Transition Break**

9:15 AM – 10:15 AM **Instructional Concurrent Session 2** **1 CE HOUR**

REGENCY C

Building a Multidisciplinary Clinic for Upper Extremity Amputees: A Collaboration Between Surgery, Rehabilitation, Prosthetics and Behavioral Health
Alta Fried, MS, OTR/L, CHT
Ajul Shah, MD

Complete care of the patient with upper limb loss mandates a long-term, multifaceted approach. Increased functionality and quality of life require collaborative efforts between the patient's surgeon, prosthetist, hand therapists, mental health professionals and peers. Consistent communication and team decision making shape each patient's preoperative and postoperative course. We aim to relay effective interventions at each step of recovery from each clinic member and describe clinic workflow designed to reinforce holistic care.

FRIDAY, SEPTEMBER 27 (CONTINUED)

REGENCY AB

Cross Your Fingers! Keys to Successful Nerve Transfer Surgery and Rehabilitation to Maximize Function in the Ulnar Intrinsic Muscles
Ida Fox, MD
Lorna Kahn, PT, CHT

Loss of ulnar intrinsic muscle function correlates with diminished grip strength, pinch strength and dexterity, and often results in hand deformity. Nerve transfer surgery is well described in the literature as good surgical option to aid in the restoration of ulnar intrinsic function in the setting of ulnar neuropathy, yet there are some who question the surgery in the setting of inconsistent outcomes. The senior presenter is a world leader in the area of nerve transfer surgery and will present her algorithm for patient selection as a key to understanding the surgery and improving outcomes. A lack of knowledge of comprehensive, postoperative motor re-education programs is also cited as a potential limiting factor to recovery of ulnar intrinsic muscle function. We will review the key concepts of nerve transfer motor re-education relating specifically to the anterior interosseous nerve to ulnar nerve transfer. Instruction in techniques for assessing and advancing exercise programs will be discussed. An outline of appropriate treatment for each of the three phases of recovery will be covered.

GRAND ABC

Multidisciplinary Perspectives of Mental Health Assessment and Intervention in Musculoskeletal Care
Ryan P. Calfee, MD
Abby L. Cheng, MD, MPHS
Macy Stonner, OTD, OTR/L, CHT

There is growing recognition of the pivotal role of mental health in musculoskeletal care, including for patients recovering from an upper extremity injury or surgery, as well as for patients with chronic upper extremity conditions. Premorbid mental health diagnoses, symptoms of depression or anxiety and pain-related beliefs are examples of factors that can be associated with limited adherence, poor outcomes and underutilization or overutilization of healthcare services. Assessing and addressing mental health in traditional musculoskeletal care spaces can be challenging because of stigma, lack of clinician knowledge and comfort and limited access to relevant resources. This session will provide a hand surgeon's, physiatrist's and hand therapist's perspectives on this topic. Clinical pearls to assess and address mental health in musculoskeletal care will be complemented by research findings and relevant case examples.

10:15 AM – 10:45 AM

Coffee Break, Exhibit Hall & e-Posters

MIDWAY WEST

10:45 AM – 11:15 AM

Plenary 4 | Presidential Invited Speaker .5 CE HOURS

GRAND DEF

Small Changes Matter Most
Hope Boykin

Understanding what to do when life shows you truths you feel you are unable to fix; my after is becoming my fullest.

FRIDAY, SEPTEMBER 27 (CONTINUED)

11:15 AM – 12:00 PM | **Plenary 5 | Presidential Address** .75 CE HOURS

GRAND DEF

Crafting Your Path: Shaping Your Future in Hand Therapy
Aviva L. Wolff, EdD, OTR, CHT

The presidential address will spotlight transformative strategies for hand therapists to seize and create substantial opportunities for personal and professional growth. This engaging session will explore how a commitment to multidisciplinary collaboration, continuous learning and innovation can propel therapists into new realms of expertise and career advancement. The presentation will include examples from colleagues who exemplify these principles, showcasing real-world applications and successes. Attendees will leave equipped with dynamic tools and insights to forge their path forward and elevate their impact in the field of hand therapy.

12:00 PM – 1:30 PM | **Lunch, Exhibits, e-Posters & Committee Meetings**

MIDWAY WEST

12:00 PM – 1:15 PM | **Hand Therapy Certification Commission: Preparing for the CHT Exam** 1 CE HOUR

REGENCY C

Martin Walsh, OTR/L, CHT

This session is presented by Mary Dimick, OTR/L, CHT, Martin Walsh, OTR/L, CHT and a panel of therapists who recently passed the Hand Therapy Certification Examination. It will describe detailed statistics regarding exam, along with insights from new CHTs about their successful preparation strategies.

12:30 PM - 1:00 PM | **Hands-on Demo Sponsored by Essity**

REGENCY AB

Are You Curious About Adding Delta Cast To Your Orthosis Fabrication Toolbox?
James C. Braxton CHT, OT

This session will include a live demonstration of using Essity Delta Cast Conformable (DCC) polyester cast tape to make a removable forearm-based wrist orthosis. This orthosis can be used for distal radius fractures (non-op and post-op), TFCC injuries and sprains/injuries that require near-circumferential, light, durable, ventilated, custom support. DCC is a versatile material and this unique technique allows the fabrication of both standard orthoses as well as limitless custom designs. Essity representatives will be available to facilitate getting this product in your clinic.

FRIDAY, SEPTEMBER 27 (CONTINUED)

1:30 PM – 2:30 PM | **Instructional Concurrent Session 3** | **1 CE HOUR**

GRAND ABC

A Practical Approach to Treating the Triumphant Trio: Harnessing the Biomechanical Linkage of the Cervical, Thoracic Spine and Scapulae to Maximize Upper Extremity Outcomes

Michael Mueller, OTR, CHT
Rachel Larson, MS, OTR/L

Hand therapists frequently treat more distal upper extremity conditions and report less comfort and competence with treatment of joints proximal to the shoulder, including the scapulothoracic region and cervical spine. The scapulae, thoracic spine and cervical spine function in synergy as components of a dynamic biomechanical system. Their relationship influences both static and dynamic postures of the entire upper extremity during everyday function and performance at the highest levels. Consequently, evaluation and intervention of the cervical spine and scapulothoracic region should be routinely included in the treatment of shoulder, elbow and hand conditions. Hand therapists may benefit from a deeper understanding of this regional interdependence to enhance their specialty practice. This instructional session will review assessment and intervention strategies for the interconnected myofascial, musculotendinous and neurovascular structures of the cervical spine and scapulothoracic region. The session will also provide diverse case examples, including athletics, musical performance and industry, for application of learning to everyday clinical practice. Mastery of this area of specialty upper extremity rehabilitation will support clinical excellence and improved outcomes for patients who seek our care.

REGENCY AB

Wrist Salvage Procedures: Surgical and Therapeutic Clinical Decision Making

Benjamin Verdine, MD
Chantell Unnerstall, OTR/L, CHT

Long-term wrist pain and dysfunction plagues the hand surgeon and hand therapist in practice. There are many opinions and strategies employed for the treatment of these patients. This session will examine the decision-making process for surgical and therapeutic intervention through the presentation of three separate case studies. Attendees are welcomed and encouraged to participate in discussion around this topic, including non-surgical intervention, resulting in effective management of chronic wrist pain.

REGENCY C

Toward High-Value Hand Therapy: On A Journey of Learning, Collaboration and Innovation

Brocha Z. Stern, PhD, OTR, CHT
Katherine J. Loomis, MA, OTR/L, CHTT

In the context of today's health care system, there is a growing urgency to deliver effective, efficient, person-centered, and equitable care. A learning health system leverages routinely collected data and external evidence to engage in continuous improvement. The concept of a learning health system is still new to our specialty and rehabilitation more generally, but this approach has tremendous potential to support our progress toward high-value care. Successful "learning" requires intentional capacity building and collaboration between multiple partners, including those with lived experience. While learning health systems are often discussed in large academic

FRIDAY, SEPTEMBER 27 (CONTINUED)

practices, concepts can be applied to various micro-systems, including an individual clinician's practice. This session will include a brief presentation to set the stage and introduce all attendees to key concepts of a learning health system approach. However, it will primarily provide a space for purposeful dialogue. Join us if you are interested in contributing—via sharing and/or listening—to a future-oriented discussion on how we can improve the value of our care.

2:30 PM – 2:45 PM **Transition Break**

2:45 PM – 3:45 PM **Scientific Session I** **1 CE HOUR**

AHTF is proud to underwrite this session through a generous donation by Jim and Beverly King.

GRAND DEF

Test-Retest Reliability and Precision of the Intermetacarpal Distance Method in Persons with Thumb Osteoarthritis
Karl Dischinger, OTD, OTR/L

Grip Strength Measurements Taken in Outpatient Physical Therapy Practice Compared to Established Norms: A Retrospective Observational Study
Frank Aerts, PT, DSc, OCS

Is the Squegg™ Digital Grip Device More Reliable Than the Adapted Sphygmomanometer? A Clinical Measurement Study
Tara L. Packham, OTReg(Ont), PhD

Biopsychosocial Education for Individuals with Subacute and Chronic Pain in the Hand, Wrist or Elbow: A Telehealth Pilot Study
Amy De Maagd, PhD, MS, OTRL, CLT, CHT, LSVT

Establishing Interrater and Intrarater Reliability for the Complete Minnesota Dexterity Test
Jacqueline Reese Walter, PhD, OTR/L, CHT

Rethinking Reporting on Return to Work for Upper Extremity Patients: Discrepencies in Rating Work Demand
Gwen Weinstock-Zlotnick, PhD, OTR/L, CHT

Comprehensive Psychosocial Evaluation in Hand Therapy – it's More Than Depression!
Karrianna Iseminger, PhD, OTD, OTR/L, CHT

Hand Therapy Level II Fieldwork Educators' Perceptions of Occupational Therapy Students' Need for Additional Education
Sarah Donley, MSOT, CHT, COMT-UL

Effectiveness of a Work Conditioning-Work Hardening Program on Patients Receiving Hand Therapy
Michele Auch, OTD, OTR/L, CHT & Patrick Skylar Furgason, OTR/L, CHT

Paving the Way for Large-Scale Hand Therapy Research: A Researcher Network Analysis
Katherine J. Loomis, MA, OTR/L, CHT

FRIDAY, SEPTEMBER 27 (CONTINUED)

3:45 PM – 4:45 PM | **Plenary Session 6 | ASHT Business Meeting & Incoming Presidential + Emerging Issues** .5 CE HOURS

GRAND DEF

Aviva L. Wolff, EdD, OTR, CHT
Kimberly A. Masker, OTD, OTR/L, CHT

The ASHT Annual Business Meeting is a valuable opportunity to learn more about the state of the society. Come see the passing of the gavel from the 2023-2024 President Aviva L. Wolff, EdD, OTR, CHT to 2024-2025 President Kimberly A. Masker, OTD, OTR/L, CHT, and hear a message from the incoming president. Emerging issues for our society and specialty will also be discussed.

4:45 PM – 5:15 PM | **Coffee Break, Exhibit Hall & e-Posters**

MIDWAY WEST

5:15 PM – 6:15 PM | **Instructional Concurrent Session 4** 1 CE HOUR

GRAND DEF

Innovative Career Paths: Trailblazing Leaders Inspiring Hand and Upper Extremity Therapists
Michael Cricchio, MBA, OTR/L, CHT
Rebecca Ehretsman, PhD, OT/L
John DaLomba, MS, OTR/L, CHT
Kim McVeigh, MBA, OTR/L, CHT, FACHE
Mo Herman, MA, OTR/L, CHT

Esteemed leaders in our profession are breaking barriers in exciting careers outside of traditional hand and upper extremity rehabilitation. This panel of therapist trailblazers will share the stage to discuss their professional contributions as a hospital healthcare executive, colonel in the U.S. Air Force, college president and specialist in the NBA. They will describe defining moments influencing their career patha that will undoubtedly resonate with therapists in the attendance. They will provide an overview of the professional impact in their unparalleled leadership positions. They will also discuss their vision for the future and how other therapists can succeed in extraordinary arenas. What they have in common is that they all started their careers in hand and upper extremity therapy as Certified Hand Therapists. But what they have been able to accomplish and continue to contribute in their unique professional journey is visionary, innovative, impactful and relevant to our growing practice as clinicians, educators and researchers. The audience will be inspired by their storied perspectives, encouraged by the limitless possibilities and feel more confident that they too can lead our specialty into further barrier-breaking opportunities.

FRIDAY, SEPTEMBER 27 (CONTINUED)

REGENCY C

Artificial Intelligence in Rehab: A Game-Changer or Threat for Hand Therapy Practice?
Vijay Muni, OTR/L, CHT

The use of artificial intelligence (AI) in rehabilitation has the potential to greatly impact the field of hand therapy. In this presentation, we will explore the pros and cons of AI in rehab, including personalized treatment plans, remote monitoring and efficiently completing documentation. We will also discuss the potential ethical and practical concerns associated with AI in hand therapy, review current AI applications and explore future directions of AI in rehabilitation.

REGENCY AB

Promotion of Self-Management in Hand Arthritis
Rachel Pigott, MPH, OTR/L, CHT
Samantha Witte, OTD, OTR/L
Madeline Kaempfer, MS, OTR/L

Self-management programs are a key tenet in health promotion programing within public health realms for chronic diseases. Self-management may not be a strategy that we always think we are engaged in as hand and upper extremity therapists, but in all actuality may be enacting. This session will outline evidence-informed constructs of self-management and promotion of self-efficacy with hand arthritis. We will learn about establishing a patient's self-efficacy, including technologies and creative treatment interventions that can support this. We will focus on why a patient's self-efficacy is important for adherence and how to measure self-efficacy. This will be tied to theoretical frameworks of health behaviors that can help to improve the structure of health promotion programs, thus linking the world of hand and upper extremity therapy to public health initiatives for chronic disease. Patients' voices will be highlighted via recorded videos of actual patient experiences in arthritis self-management. We will also use technology to engage the audience in an interactive session to promote learning.

GRAND ABC

Clinical Practice Posters: Spotlight I
Brian Wilkinson, PT, DPT, DHSc, CHT, CLT
Nicole Bickhart, OTD, OTR/L, CHT
Jessica Asiello, OT, OTD, OTR
Valerie Aziegbe, OTR/L, CHT, COEE
Michelle Hagenbaugh, MS, OTR/L, CHT
Kathrine Manolopoulos, OTR/L, CHT
Clyde Johnson, PT, CHT
Megan Swanson, MOT, OTR/L, CHT

This session will spotlight several of the Clinical Practice Posters presented at this year's Annual Meeting. Rapid-fire presentations of interesting cases and novel treatment or educational approaches will be followed by time for discussion and audience questions. Come to learn, innovate, and collaborate.

FRIDAY, SEPTEMBER 27 (CONTINUED)

6:30 PM – 8:00 PM | **AHTF Happy Hour with a Scholar (Ticketed Event)** 1 CE HOUR

GRAND ABC

Maximizing Your Impact
Charles Goldfarb, MD

Dr. Goldfarb will share his perspective on impact. By impact, he means how we can influence those around us in daily life and more importantly, through the work we do. This will include involvement in national organizations, publishing, and various other forms of communication including social media, blogging and podcasting.

8:00 PM | **Night Out Events (On Your Own)**

SATURDAY, SEPTEMBER 28

6:30 AM – 7:30 AM | **Breakfast Symposium Sponsored by Allard** 0 CE HOURS

GRAND ABC

Optimal Positioning – Minimal Waste
Magareta Persson, OTR, Sr. Hand Therapist

This session will discuss the positioning of the hand with orthoses and choice of material and product from biomechanical, environmental, cost, time consumption, and design related perspectives. Diagnoses covered include trauma, OA, and neurological conditions with some extra focus on the pediatric hand. Practical tips and techniques for orthotic fabrication and sustainable choice of material and product will be presented. Additionally, we demonstrate hands-on construction of custom-made orthoses as well as adaptation of prefabricated orthoses.

7:45 AM – 8:45 AM | **Instructional Concurrent Session 5** 1 CE HOUR

GRAND DEF

Who, What, and When to Dose: Exercise Prescription for Achieving Therapy and Fitness Goals
April O'Connell, OTR/L, CHT
Jeff Young, MS, CSCS, ACSM-EIM

This dynamic multi-disciplinary presentation will guide therapists across all experience levels to critically think about why they are prescribing exercises for their patients, including the rationale for volume, intensity, speed and mode as it applies to our patient populations. Rehabilitative exercises differ from traditional exercise programs given by personal trainers in that they are designed by therapists to achieve specific measurable outcomes that integrate the patient's functional goals. We will explore exercise prescription as medicine and how it relates to our patients' functional roles, their age, stage of healing and treatment diagnosis. A comprehensive physiology review will be outlined by one of the top exercise physiologists in the field to give the learner a thorough background of tissue adaptations. Therapists will leave being able to critically think about

SATURDAY, SEPTEMBER 28 (CONTINUED)

why exactly they prescribe a certain set of exercises rather than defaulting to three sets of 10 repetitions and engage the patient in their therapeutic exercise to achieve better buy-in and compliance. Other considerations, such as when should we do manual work to get the most out of our treatment sessions, as well as proprioceptive considerations of exercise, will also be discussed.

REGENCY AB

Empowering Hands: A Journey into Launching Your Own Hand Therapy Private Practice
Cynthia Weinberger, OT/L, CHT

Are you a therapist thinking about starting your own practice? This session will help you to make the decision that is right for you! Embark on a comprehensive journey exploring the ins and outs of starting a successful hand therapy private practice. This presentation is designed to provide you with a balanced perspective, delving into the positives, challenges and the practical realities involved in establishing your own hand therapy practice. The presentation will explore both the concept of a mobile hand therapy practice, as well as a clinic-based practice. Topics will include but will not be limited to how to start, marketing, telehealth, growth, financial considerations and Q & A.

GRAND ABC

Solution-Focused Counseling Techniques for Clients with Chronic Pain
Amy De Maagd, PhD, MS, OTRL, CLT, CHT, LSVT

Did your client's goal progression stall? Did they report feeling "overwhelmed" and unable to decide how to proceed? Solution-focused counseling techniques assist you in building trust with your clients and empower them to create solutions for barriers, now and in the future. In this session, you will learn basic counseling skills for interviewing clients, identifying their wants, gauging progress and applying these techniques with pain neuroscience education to improve occupational performance and satisfaction.

REGENCY C

Pediatric Hands: More than Just Child's Play
Josh MacDonald, MS, OTR/L, CHT

Children needing hand therapy is a unique population. And it's more than a collection of different diagnoses and smaller hands. Children have developmental milestone cnsiderations, psychological needs, occupational differences, varied family/social dynamics and a whole host of other aspects that make working with children about more than just "smaller hands." This session will cover the importance of developmental considerations of your patient, as well as family dynamics that directly affect your sessions and your client. Additionally, the tools you need to have on hand, and the space you need to create in your clinic, in order to meet the unique needs of the pediatric population will be discussed. It is essential to connect with the child and family and build trust and rapport while using play as a primary occupation. Participants will leave with recommendations on how to uniquely structure clinic spaces, plan treatment sessions and create an environment that improves your patient's outcomes while preserving and respecting the pediatric nature of your patient. Finally, this course will incorporate case-based learning, to include video footage of pediatric sessions, highlighting the unique nature of their treatment sessions and guidance on how to blend hand therapy with a play-based focus.

8:45 AM – 9:00 AM

Transition Break

SATURDAY, SEPTEMBER 28 (CONTINUED)

9:00 AM – 10:00 AM | **Instructional Concurrent Session 6** 1 CE HOUR

GRAND ABC

Yes! You Can Accelerate Athletes for Safe Return to Sport: A Surgical and Rehabilitation Collaboration

Mo Herman, MA, OTR/L, CHT
Steven Shin, MD, MMSc, MBA

This session features a renowned hand surgeon and upper extremity therapist leader sharing their wealth of expertise in working with elite and professional athletes. Their presentation will highlight two common sports hand and thumb injuries that require surgery: metacarpal shaft fractures and thumb ulnar collateral ligament tears. They will use case examples to discuss the advances in surgical techniques that have enabled rehabilitation timelines to be safely accelerated. Sport-specific clinical rehabilitation interventions will be shared for each diagnosis. The speakers will also highlight the collaborative surgeon/therapist partnership necessary for athletes to successfully and safely accelerate return to sport at an elite level. At the end of the presentation, the audience will have a better understanding of the advances in surgical techniques, athlete-centered accelerated rehabilitation progressions and the dynamic surgeon/therapist teamwork required for optimal outcomes.

REGENCY AB

Looking Upstream for Downstream Problems: Comprehensive Management of Distal Nerve Compressions

Lorna Kahn, PT, CHT
Anita Uhlmann, PT, DPT
Leigh Wilson, PT, DPT, CHT

When treating distal nerve compressions of the arm, it is important to consider all the potential sources of irritations to the nerve from the neck down. Numbness and tingling in the fingers do not necessarily equate to an isolated nerve compression. It is often the cumulative effect of movement faults related to habit and posture. This presentation will address a comprehensive exam that includes postural analysis, ergonomics of worksite and sleep, use patterns, muscle length and strength and review of special tests. Treatment concepts that take you out of the hand "box" will be explored. Case-based discussion will be presented with ideas to expand and enhance your treatment skills for this often frustrating patient population.

REGENCY C

Breast Practices: Restoration of Upper Quadrant Function After Breast Cancer Treatment

Alexandra MacKenzie, OTR/L, CHT

Breast cancer will affect 1 in 8 women, and the treatments for breast cancer can lead to impairments in upper extremity function and decreased quality of life for survivors. Decreased ROM, impaired sensation, scarring and pain are a few of potential treatment side effects, yet rehabilitation services are under utilized in this population. As hand therapists, we are in a unique position to treat this population of patients. The goal of this session is to provide the attendee with an overview of treatment strategies for patients who have undergone lumpectomy, mastectomy, lymph node resection, radiation and/or chemotherapy. We will discuss the importance of exercises designed to prevent lymphedema and build strength and improve function. We will look at the importance of addressing scapular dysfunction and posture, as well as assessing and addressing axillary web syndrome. We will also look at the effects of radiation on healing and soft tissue structures.

SATURDAY, SEPTEMBER 28 (CONTINUED)

10:00 AM – 10:30 AM
MIDWAY WEST

Coffee Break, Exhibit Hall & e-Posters

10:30 AM – 11:30 AM

Scientific Session II **1 CE HOUR**

AHTF is proud to underwrite this session through a generous donation by Jim and Beverly King.

GRAND DEF

Reliability & Validity of The Measures Used in The Somatosensory Rehabilitation Method with Induced Sensory Changes: A Psychometric Study
Tara L. Packham, OTReg(Ont), PhD

Reliability Of the Corbett Targeted Coin Test
Jeanine Beasley, EdD, OTR, CHT, FAOTA

A Mixed Methods Analysis of Health Literacy Among Adults with Brachial Plexus Birth Injury
Jenny Dorich, PhD, MBA, OTR/L, CHT

Inter-Rater Reliability of Video Based Range of Motion Assessments in Post-Reconstruction Brachial Plexus Patients
Stephen DeMartini

What Do Patients with Traumatic Brachial Plexus Injuries Need for Social and Emotional Support? A Qualitative Analysis.
Eshan Sane

Pediatric Upper Limb Surgical Experiences with Hemiplegia: A Qualitative Study of Child and Parent Perspectives
Angelica Rodriguez, OTD, OTR/L

Outcomes Of Glenohumeral Dysplasia Following Brachial Plexus Birth Injury Using the Sup-Er Orthosis
Megan Horowitz, MS, OTR/L, CHT, CEAS

Enhancing Hand Function Recovery After Extended Radial Forearm Free Flap: A Case Series and Review of An Innovative Therapy Protocol
Justin Stehr, OTR/L, CHT, WCC, CEAS

A Survey Study of Practice Patterns with Pediatric Hand Therapy Patients
McKenzie Osborne, OTD, OTR/L

A Qualitative Analysis of Patient/Family Treatment Goals for Children with Brachial Plexus Birth Injury
Jenny Dorich, PhD, MBA, OTR/L, CHT

SATURDAY, SEPTEMBER 28 (CONTINUED)

11:30 AM – 12:45 PM | **Plenary 7 | Award Lectures** 1.25 CE HOURS

GRAND DEF

Nathalie Barr Lectureship Award: The Hand We Play
Cindy Ivy, OTD, MEd, CHT

Joy MacDermid Lifetime Scientific Award Lecture: Research Collaboration Promotes Innovation and Advancement
Kris Valdes, OTD, OTR, CHT

Come celebrate and be inspired by the outstanding accomplishments of our hand and upper extremity therapy leaders! Dr. Cindy Ivy, the 2023 Nathalie Barr Lectureship Award recipient, will give her award lecture from 11:30 AM - 12:15 PM. Dr. Kristin Valdes, the 2023 Joy MacDermid Lifetime Scientific Award recipient, will give her award lecture from 12:15 PM - 12:45 PM.

12:45 PM – 2:45 PM
MIDWAY WEST

Lunch, Exhibits, e-Posters & Committee Meetings

12:45 PM – 2:15 PM | **International Committee Lunch** 1.5 CE HOURS

REGENCY C

Breaking Barriers to International Volunteerism
Kim Rosinski, OTR/L, CSCS, CHT
Josue Daniel Vargas Aguilar, OT, MPT,CIDN, MAKER 3D
Mary Collier Barnes, MOT, CHT, CIDN

The barriers to international volunteerism may seem insurmountable to therapists. Therapists may have concerns about time away from work, cost, personal safety, vaccination requirements, how to prepare and, importantly, how to make a lasting difference. This presentation will identify resources available to help therapists participate including funding sources, ways to make the impact sustainable through education and networking, and alternatives to thermoplastics that may be unavailable or prohibitively expensive in developing countries.

1:00 PM – 2:00 PM | **AOTF: Advancing the Science of Occupational Therapy, Strengthening Practice Through Philanthropy and Research** 1 CE HOUR

REGENCY AB

Lawrence Liff, MA

The American Occupational Therapy Foundation (AOTF) is the nation's leading non-profit organization investing in new occupational therapy research, future researchers, and the OT workforce. This session will highlight the unique mission, critical investments and special opportunities created by AOTF through the power of philanthropy to strengthen occupational therapy through evidence-based practice. Whether you are a clinician, researcher, educator, or student, this session is for you. Come to learn about how hand therapists can engage with AOTF and benefit from the resources AOTF has to offer.

SATURDAY, SEPTEMBER 28 (CONTINUED)

1:00 PM – 2:30 PM | **Student Meet-up**

MIDWAY SUITES 6

Emma Petkofsky, OTR/L, CHT
Laurie Humiston, MS, OTR/L, CHT

The student meet-up is an excellent chance to meet and mingle with fellow student attendees at the ASHT Annual Meeting. The meet-up will include information on ASHT student offerings, a presentation on hand therapy fellowships by Laurie Humiston, MS OTR/L CHT, tips and tricks for a level 2 fieldwork experience or clinical rotation in hand therapy and a fun activity to flex your creativity.

2:45 PM – 3:30 PM | **Plenary 8 | International Invited Speaker** .75 CE HOURS

GRAND DEF

Elevating the Patient Experience in Hand Therapy: A Global Perspective
Jean Paul Brutus, MD

Join us for an inspiring lecture by our esteemed international speaker, who will share innovative strategies and insights on enhancing the patient experience in hand therapy. Drawing from global practices and personal expertise, the presentation will delve into patient-centered care models, effective communication techniques and holistic approaches that prioritize the well-being and satisfaction of patients. Attendees will leave with practical tools and a renewed perspective on how to elevate the standard of care in their own practices, fostering a more compassionate and effective therapeutic environment.

3:30 PM – 4:00 PM | **Plenary 9 | Practice Division Update: Policy Trends & Hand Therapy Practice** .5 CE HOURS

GRAND DEF

Ann Marie Feretti, EdD, OTR/L, CHT
James Fleischmann, JD

This presentation will provide advocacy and legislative updates from the current year regarding hand therapy. This session includes discussion about ASHT Practice Division activity, initial results from the recent practice survey and insight into the critical role of policymaking on shaping payment and practice. The session will also include updates on the progress we have made this year as well as an outlook for what lies ahead, including with respect to orthotic coverage, Medicare reimbursement and efforts to reduce burdensome red tape impacting hand therapists.

4:00 PM – 4:45 PM | **Plenary 10 | "Equipping Heros" and Awards Ceremony** .75 CE HOURS

GRAND DEF

Equipping Heroes: Training Ukrainian Therapists in Hand
Nathan Short, PhD, OTD, CHT

Nathan Short, the 2023 recipient of the Evelyn Mackin Travel Grant for Education and Research, will discuss implementing a hand therapy conference in Ukraine as part of a collaboration between the World Health Organization (WHO) and Hand in Hand with Ukraine (HIHWU). The conference was held to address limited access to specialized hand rehabilitation for individuals with complex traumatic injuries and promote early rehabilitation using a team-based approach. The presentation will highlight the role of hand therapists in addressing combat injuries and encourage reflection on opportunities to advance health equity globally.

SATURDAY, SEPTEMBER 28 (CONTINUED)

Research & Named Awards Presentations
Celebrate the accomplishments of your colleagues receiving awards for their impact on the American Society of Hand Therapists, their contributions to the specialty of hand and upper extremity therapy and their outstanding research.

4:45 PM – 5:00 PM — **Transition Break**

5:00 PM – 6:00 PM — **Instructional Concurrent Session 7** **1 CE HOUR**

REGENCY C

What to Do When There is No Protocol? Applying Evidence-Based Practice to Solve Everyday Clinical Problems
Ann Marie Feretti, EdD, OTR/L, CHT
Steven Koehler, MD, FAAOS
Megan Horowitz, MS, OTR/L, CHT, CEAS

This will be an interactive instructional session where participants will explore how to approach and design a postoperative plan in a case-based format. We will explore several cases, such as a new surgical procedure that was performed where there was no postoperative protocol ever used before, or a referral that was vague and the therapist had to create their own plan. This session is an intermediate level course, designed to be interactive with newer and experienced practicing hand therapists who are willing to challenge themselves and engage in clinical reasoning to push their skills. Evidence-based practice is often discussed, but it can be challenging to incorporate that concept into everyday practice in a busy clinic environment. How do you bridge that gap from evidence to practice? Together in this instructional workshop, we will explore ways to collaborate with the surgeon, gather existing evidence, brainstorm ideas with colleagues and use clinical reasoning to develop a plan that will work for unique patient cases and situations to achieve the best possible functional outcomes.

REGENCY AB

Brachial Plexus Injuries: A Team Approach to Care
Macy Stonner, OTD, OTR/L, CHT
Christopher Dy, MD, MPH

Brachial plexus injuries are anatomically complex and have a profound effect no only on physical function, but also on patients' psychosocial, professional and financial wellbeing. The clinical management of brachial plexus injuries therefore necessitates a holistic team approach. This talk presents our practice model of a brachial plexus clinic with six disciplines contributing to evaluation and treatment: peripheral nerve surgeon, physiatrist, hand therapist, pain psychologist, research coordinator and social worker. Our clinic's hand surgeon and hand therapist will discuss their unique contributions to the management of these complex injuries. Therapy plays a role in the evaluation through manual muscle testing of intraplexal muscles/nerves to localize nerve injury, assess return of function and identify potential donors for nerve or tendon transfers. The surgeon collaborates with the therapist regarding surgical planning, pre- and postoperative management and ongoing supportive care to address neuropathic pain, psychosocial and functional needs. Together, all disciplines offer a unique but crucial role in helping those with a devastating injuries optimize their quality of life.

SATURDAY, SEPTEMBER 28 (CONTINUED)

GRAND ABC

Peripheral Nerve Entrapments and the Role of Hand Therapy
Jean Paul Brutus, MD

Discover the pivotal role hand therapists play in managing peripheral nerve entrapments. This session will explore how therapists, through their extensive patient interactions, act as the eyes and ears of the surgeon, identifying subtle changes and nuances in patient symptoms. By leveraging their unique position, therapists can provide critical insights that guide surgical decisions and enhance patient outcomes. Join us to learn effective assessment techniques, communication strategies and therapeutic interventions that empower therapists to contribute significantly to the surgical team and patient care.

7:00 PM – 10:00 PM — **St. Lou-a-Palooza (Ticketed Event)**

DELMAR HALL (OFFSITE)

Join us at Delmar Hall for dancing, food, drinks and fun! Downtime band will provide an exceptional musical experience, covering all genres with professionalism and fun. With their wide variety of music, high energy and quality sound, attendees are guaranteed a great time!

SUNDAY, SEPTEMBER 29

8:00 AM – 9:00 AM — **Instructional Concurrent Session 8** **1 CE HOUR**

GRAND DEF

The Pearls and Pitfalls of Free Functional Muscle Transfers
Macy Stonner, OTD, OTR/L, CHT

The incidence of brachial plexus injuries is rising at a rapid rate and has been documented to be up 50% at academic medical centers in the past five years. Surgical innovations, such as free-functional muscle transfers (FFMT), have gained momentum that optimize outcomes in a population of patients who have historically had minimal reconstructive options. Formal therapy following FFMT is crucial: to monitor for flap vascularity, instruct in motor retraining, protect elbow flexor length and much more. These patients often travel lengthy distances to obtain surgical care at large academic institutions and later return home to remote towns for ongoing rehabilitation. Currently, there are no articles in the existing literature that provide guidance on the rehabilitation for FFMT. Therapists in smaller clinics deserve to have the knowledge and resources available to them to effectively treat patients who undergo complex free-functional muscle transfers. This presentation will provide a background about the FFMT surgery and outline the rehabilitation involved. It will also include five case presentations of one pediatric and four adult plexus injuries, including the extent of their nerve injuries, each postoperative course and outcome videos.

SUNDAY, SEPTEMBER 29 (CONTINUED)

REGENCY C

Non-Progressive Neurological Injury Affecting the Upper Extremity: Hope for Increasing Independence
Kailey Bedford, MOT, OTR/L, CHT
Daniel Lewis, MD
Michael Geary, MD

What happens when primary recovery following a neurological injury is thought to be completed? This course will cover common upper extremity deficits seen in individuals with past non-progressive neurological events, such as spinal cord injuries and CVAs, and what surgical options exist to increase functional independence. This population of individuals largely suffers from loss of functional reach, gross grasp and pinch, which significantly impacts their engagement in occupation. The course will provide an overview of care provided to this population in an outpatient setting with both a focus on surgical procedures and the rehab focus post operatively from the lens of a Certified Hand Therapist.

REGENCY AB

Treating the Whole Person: The Intersection of Psychology and Hand Therapy
Erika Schnaps, OTR/L, CHT

In the hand therapy setting, it can be easy to focus on our patients' injuries and to forget about the whole person, specifically the role psychology can play in rehabilitation and functional limitations. Physicians often refer patients with various hand conditions to therapy solely based on the severity of their injury/surgical needs without assessing any psychological concerns; however, patients dealing with an array of psychological factors, such as pain-related coping mechanisms, pain catastrophizing, depression, anxiety, post-traumatic stress disorder, etc. may end up requiring additional therapy sessions and support. It's crucial for therapists to be able to recognize and address these psychological factors influencing the therapeutic process. Our role is not to be psychologists, but to initiate difficult conversations to identify maladaptive behaviors and emotional distress and to ask about patients' support systems. This entry-level session hopes to empower participants to feel more comfortable discussing mental health with their patients and to feel more confident in providing support. From creating a safe space and emphasizing positivity to recognizing when to refer out to a mental health provider, participants will learn ways to effectively address these psychological concerns.

GRAND ABC

Clinical Practice Posters: Spotlight II
Brian Wilkinson, PT, DPT, DHSc, CHT, CLT
Krystal L. Vermillion, MOT, OTR/L | Pamela E. Toto, PhD, OTR/L, BCG, FAOTA, FGSA
Sarah Fench, OTR/L, CHT, CLT-LANA | Ellen King, OTR, CHT | Kelly Santel, MOTR/L, CHT
Terence Myckatyn, MD | Jennifer Radziak, OTD, OTR/L, CHT | Kelsey Picha, PhD, ATC
Katie Jones, MA, OTR/L, CLT-LANA | Melanie Hubbuck, MS, OTD, OTR/L, CHT

This session will spotlight several of the Clinical Practice Posters presented at this year's Annual Meeting. Rapid-fire presentations of interesting cases and novel treatment or educational approaches will be followed by time for discussion and audience questions. Come to learn, innovate, and collaborate.

9:00 AM – 9:15 AM

Coffee Break

FOYER C

SUNDAY, SEPTEMBER 29 (CONTINUED)

9:15 AM – 10:15 AM | **Instructional Concurrent Session 9** | **1 CE HOUR**

REGENCY C

Medial Epicondyle Fractures in Kids: The Good, the Bad and Ugly
Stacy Baker, MOT, OTR/L, CHT
Charles Goldfarb, MD

In this session, you will learn about the complexities of adolescent and pediatric medial epicondyle elbow fractures. This session will cover the surgeon's perspective on surgical and nonsurgical care, and an overview of surgical approaches. We will discuss timeline for therapy initiation as relates to operative vs non-operative care. We will discuss interventions used including addressing the ulnar nerve as a common contributor to medial elbow pain. The session will highlight both common and uncommon symptoms observed during this course of treatment from a therapist/surgeon perspective. We will highlight the close communication between the surgeon and therapy team as gaining full elbow motion is extremely important.

Finally, there is a subset of patients that simply do not progress well after intervention secondary to pain and limited motion. These patients are often 10-13 year old females and we have found that many struggle due to irritation of the ulnar nerve. We have found that addressing the ulnar nerve can be a game changer.

GRAND DEF

Hypermobility and High Demands: Upper Extremity Rehabilitation of the Hypermobile Female Athlete
Michael Mueller, OTR, CHT
Alexandra Vertus, MS, OTR/L, CHT

The rehabilitation and safe return to sport of the hypermobile female athlete presents many challenges to even the most experienced clinician. How much mobility is "hypermobility"? How do you load a hypermobile joint safely? How does the female physiology affect rehabilitation, exercise programming and sports performance? This session will discuss the evaluation and treatment of hypermobility throughout the upper extremity and the influence of the female athlete's physiology. Case examples will be utilized to illustrate recovery strategies, from evaluation to return to sport testing and programming.

REGENCY AB

The Power of Pain Metaphor, Expression, and the Art of Clinical Care
Alyssa Phillips, CScD, MOT, OTR/L
Hannah Gift, OTR/L, CHT, COMT UE, CEAS

How do we bridge the gap between the way our clients experience pain and our understanding of their subjective experience? Pain is the sensation that shapes healing, shapes our therapy outcomes and shapes day-to-day experiences for our clients. How do we ask about the quality of pain? Describe how pain works within our bodies and brains? How do we assure clients that pain is an important member of their rehabilitation journey? Wherever pain first arrives in the conversation with your client and their care plan, it is subjective and no two clients will feel it the exact same way. In this session, explore pain through metaphor as a way to engage your client, support their ability to control their pain and improve clinical outcomes.

SUNDAY, SEPTEMBER 29 (CONTINUED)

GRAND ABC

Addressing the Knowledge Gap: Using Inclusive Communication in Hand Therapy to Improve Client Outcomes
Theresa Hallenen, DHSc, MS, OTR/L, CHT
Megan Vrooman, MOT, OTR/L

Do you experience concerns about the adequacy of education and training received by your clients? Many healthcare providers are troubled by this issue. In hand therapy, we provide critical information for client safety, home programming and ultimately returning clients to preferred activities. Clients with limited health literacy struggle with autonomy, self-advocacy and maintaining good health. Addressing the knowledge gap will enable the therapist to strengthen the therapeutic alliance and enhance health outcomes. Using inclusive communication practices and increasing our understanding of the complexity of the health literacy barrier, we can make positive change for our hand therapy clients.

10:15 AM – 10:30 AM **Transition Break**

10:30 AM – 11:30 AM **Instructional Concurrent Session 10** **1 CE HOUR**

GRAND ABC

Sensational Treatment Planning: Optimizing Neuroplasticity Principles in Sensory Re-education
Tara L. Packham, OTReg(Ont), PhD

Our understanding of somatosensory systems continues to evolve, and so should our interventions. This session will focus on specific treatment ideas to address sensory loss and painful dysesthesias in the hand and upper limb. Participants will discuss individual and combined options for sensory re-education to optimize learning. The focus will be on how to grade clinic and home programs to help their clients progress toward a 'sensational' recovery. This session is suitable for all levels of experience, and the strategies are relevant across a number of client populations, including nerve injury, multi-tissue trauma/crush injuries, complex regional pain syndrome and stroke.

REGENCY AB

Preventing and Treating Common Rock Climber Upper Extremity Injuries: Promoting Safe Participation
Emily Hartnett, OTD, MOTR/L, CHT

Hand therapists are currently being presented the opportunity to research the increasingly popular sport of rock climbing and its required demands on the upper extremities due to the sport's recent addition to the Summer Olympics in 2020. The unique and repetitive ways in which rock climbers use their upper extremities require due diligence in research and intervention from providers. This session will prepare hand therapists to efficiently treat their rock climbing clients. Providers will be taught a specific stretching routine established and researched by this presenter to target specific upper extremity muscles used frequently and repetitively by rock climbers that are not used in the same manner in the non-rock climbing population. Providers will be instructed on how to help their clients identify temporary pain due to strenuous activity versus harmful pain due to damaging an anatomical structure. Providers will also be instructed on how to collaborate with their clients on how to avoid repetitive strain during rock climbing without negating the body mechanics needed to functionally rock climb. The main objective of this presentation is to equip hand therapists with the tools needed to promote health and prevent injury with the current rising increase in rock climbing clients.

SUNDAY, SEPTEMBER 29 (CONTINUED)

REGENCY C

Mentorship: Advancing Novice Professionals into Exceptional Upper Extremity Therapists
Stacy Baker, MOT, OTR/L, CHT
Luu Wong, OTR/L, CHT
Lauren Mione, MSOT, OTR/L, CHT
Sarah Fench, OTR/L, CHT, CLT-LANA

As hand therapists, we need to be proactive to keep the hand therapy specialty alive. Our profession is unique and serves as a critical step of recovery for individuals with upper extremity-related issues. In this session, you will learn how to share your love and success in the field with new graduates interested in hand therapy, as well as students on their clinic rotations. We will review an objective approach, as well as tips and tricks, to support a novice occupational or physical therapy student in a hand therapy clinical rotation. We will discuss barriers that may arise during a student's fieldwork and steps to take to overcome those barriers. To conclude, we will describe ways to foster a positive mentorship between a supervisor and new therapist.

GRAND DEF

Upper Limb Partial Hand Prosthetic Rehabilitation
Lauren Trent, MOT, OTR/L
Julian Wells, CPO, FAAOP

Partial hand amputations comprise approximately 90% of all upper limb amputations. Along with the responsibility of addressing the patient's functional goals, it is imperative that the treating therapist address any psychosocial and pain challenges that the patient may be experiencing. Levels of self-perceived disability are frequently greater in patients with partial hand amputations than those with higher level amputations. Pre-prosthetic interventions are critical to addressing multiple rehabilitation principles to help maximize outcomes with a prosthesis. Occupational therapists, in partnership with prosthetists, hand surgeons and other team members, help to guide optimal prosthetic choices for the patient that are based on client strengths, needs and the demands of their environment. Working with an upper limb prosthetic specialist ensures the patient receives the most appropriate prosthetic options to meet their individual functional requirements. The presentation will show a variety of prosthetic options available and phases of prosthetic rehabilitation to help patients to return to living life to its fullest. Case studies will be presented to help demonstrate solutions throughout. Lastly, new and developing technology will be highlighted along with the latest surgical approaches designed to help decrease pain, improve control and advance the field of prosthetics.

SCHEDULE AT A GLANCE

ASHT 2024 ANNUAL MEETING
September 26-29, 2024 | St. Louis, MO

THURSDAY 9/26

- Pediatric Specialty Day (Ticketed Event) 8:00 AM - 4:00 PM (6.5 CE Hours Total)
- Welcome
- Session 1 "Learning" 8:15 AM - 9:15 AM
- Session 2 "Collaborating" 9:15AM - 10:15 AM
- Coffee Break
- Session 3 "Innovating" 10:30 AM - 11:30 AM
- Research Session 11:30 AM - 12:00 PM
- Lunch 12:00 PM - 1:00 PM
- Keynote Speakers 1:00 PM - 1:50 PM
- Breakout Session I 2:00 PM - 2:55 PM
- Breakout Session II 3:05 PM - 4:00 PM
- Pre-Conference Institute (Ticketed Event) 12:00 PM - 4:00 PM (4 CE Hours)
- Transition Break 4:00 PM - 4:30 PM
- Welcome - 4:30 PM - 4:45 PM
- Plenary Session 1 | Opening Session 4:45 PM - 5:30 PM (0.75 CE Hour)
- Plenary Session 2 | Panel Discussion 5:30 PM - 6:15 PM (0.75 CE Hour)
- Plenary Session 3 | Therapy Tips 6:15 PM - 7:00 PM (0.75 CE Hour)
- Welcome Reception 7:00 PM - 9:00 PM

FRIDAY 9/27

- New Member/Student/First-time Attendee Breakfast 7:00 AM - 7:45 AM "Let's Be New Together"
- Instructional Concurrent Session 1 8:00 AM - 9:00 AM (1 CE Hour)
- Transition Break 9:00 AM - 9:15 AM
- Instructional Concurrent Session 2 9:15 AM - 10:15 AM (1 CE Hour)
- Coffee Break, Exhibits, Posters 10:15 AM - 10:45 AM
- Plenary Session 4 | Presidential Invited 10:45 AM - 11:15 AM (0.5 CE Hour)
- Plenary Session 5 | 2024 Presidential Address 11:15 AM - 12:00 PM (0.75 CE Hour)
- Lunch, Exhibits, Posters & Committee Meetings 12:00 PM - 1:30 PM
- HTCC Preparing for the CHT Exam - 12:00 PM - 1:15 PM (1 CE Hour)
- Essity Hands on Demo - 12:30 PM - 1:00 PM
- Gavel Club; Division & Committee Meetings (Research, Outreach & Leadership)
- Instructional Concurrent Session 3 1:30 PM - 2:30 PM (1 CE Hour)
- Transition Break 2:30 PM - 2:45 PM
- Scientific Session I Sponsored by AHTF 2:45 PM - 3:45 PM (1 CE Hour)
- Plenary Session 6 | ASHT Business Meeting + Incoming Presidential & Emerging Issues - 3:45 PM - 4:45 PM (0.5 CE Hour)
- Coffee Break, Exhibits, Posters 4:45 PM - 5:15 PM
- Instructional Concurrent Session 4 5:15 PM - 6:15 PM (1 CE Hour)
- AHTF Fundraiser - Happy Hour with the Scholar - (Ticketed Event) 6:30 PM - 8:00 PM (1 CE Hour)
- Night Out Event (On Your Own) 8:00 PM

SATURDAY 9/28

- Breakfast Symposium Sponsored by Allard 6:30 AM - 7:30 AM (No CE Hours)
- Instructional Concurrent Session 5 7:45 AM - 8:45 AM (1 CE Hour)
- Transition Break 8:45 AM - 9:00 AM
- Instructional Concurrent Session 6 9:00 AM - 10:00 AM (1 CE Hour)
- Coffee Break, Exhibits, Posters 10:00 AM - 10:30 AM
- Scientific Session II Sponsored by AHTF 10:30 AM - 11:30 AM (1 CE Hour)
- Plenary Session 7 | Award Lectures 11:30 AM - 12:45 PM (1.25 CE Hour)
- Lunch, Exhibits, Posters & Committee Meetings 12:45 PM - 2:45 PM
- International Committee Lunch 12:45 PM - 2:15 PM (1.5 CE Hours)
- AOTF Talk - 1:00 PM - 2:00 PM (1 CE Hour)
- Student Meet-Up - 1:00 PM - 2:30 PM (No CE Hours)
- Division Meetings (Practice & Education)
- Plenary Session 8 | International Invited Speaker 2:45 PM - 3:30 PM (0.75 CE Hour)
- Plenary Session 9 | Practice Division Update: Policy Trends & Hand Therapy Practice 3:30 PM - 4:00 PM (0.5 CE Hour)
- Plenary Session 10 | "Equipping Heroes" and Named Awards 4:00 PM - 4:45 (0.75 CE Hour)
- Transition Break - 4:45 PM - 5:00 PM
- Instructional Concurrent Session 7 5:00 PM - 6:00 PM (1 CE Hour)
- St. Lou-a-Palooza (Ticketed Event) 7:00 PM - 10:00 PM
- Buses leave at 6:30 PM
- Doors open 6:45 PM
- Party begins at 7:00 PM
- Buses return to the hotel at 10:00 PM

SUNDAY 9/29

- Instructional Concurrent Session 8 8:00 AM - 9:00 AM (1 CE Hour)
- Coffee Break 9:00 AM - 9:15 AM
- Instructional Concurrent Session 9 9:15 AM - 10:15 AM (1 CE Hour)
- Transition Break 10:15 AM - 10:30 AM
- Instructional Concurrent Session 10 10:30 AM - 11:30 AM (1 CE Hour)

CLINICAL PRACTICE POSTERS

New this year! Clinical practice posters are non-research posters that can highlight a clinical innovation, a complex case, a knowledge translation or clinical implementation story. Clinical practice posters can be viewed on site on the kiosks in the Exhibit Hall or through the ASHT on-demand platform. Additionally, several clinical practice posters will be highlighted at two spotlight sessions on Friday at 5:15-6:15 PM and on Sunday at 8:00-9:00 AM.

Assessment and Intervention for a Patient with Concurrent Traumatic Ulnar and Median Nerve Injury: A Case Example
Ho Wing Kelvin Fung, PT, CHT

Exploring the Lived Experience of a Jazz Musician with Charcot-Marie-Tooth (CMT) Disease
Deborah Schwartz, OTD, OTR/L, CHT

Treatment of Zone III Extensor Tendon Injuries Using a Single Relative Motion with Dorsal Hood Orthosis and a Modified Short Arc Motion Protocol
Kathrine Manolopoulos, OTR/L, CHT | Clyde Johnson, PT, CHT | Megan Swanson, MOT, OTR/L, CHT

Characteristics of Successful Orthopedic Fellowship Training Programs
Rebekah Pogwizd, OTD, CHT, OTR/L

Management of Musculoskeletal Pathology Related to Long COVID
Carol Beistle, OTR | Ann Maguire, MD | April Lowther, Social Worker

A Hand Therapist's Guide to Breast Cancer-Related Lymphedema
Sarah Fench, OTR/L, CHT, CLT-LANA

Effectiveness of Dry Needling to Treat Lateral Epicondylosis: A Case Report
Nathan Short, PhD, OTD, CHT

Preparing the Next Generation of Hand Therapists: Innovating Clinical Education Through a Community-Based Pro Bono Clinic
Nicole Bickhart, OTD, OTR/L CHT | Jessica Asiello, OT, OTD, OTR

Promoting Diversity in Upper Extremity Rehabilitation: Strategies for Enhancing Underrepresented Minorities Representation for Excellence in Client Outcomes
Sharniece Pierce, OTD, OTR/L, CLT-UE, CEAS, CSC, CPT, CAFS, CKTP, MFDc, AIB-VR/CON, LSVT BIG Certified

Utilization of the External Rotation Abduction Thermoplastic Shoulder Orthosis for Adolescents with Birth-Related Brachial Plexus Injuries Following Shoulder Reanimation Surgery
Ann Marie Feretti, EdD, OTR/L, CHT | Steven Koehler, MD, FAAOS | Nathan Khabyeh-Hasbani, BA | Manisha Joshi, OTR/L, CHT | Victoria Ferrante, OTR/L, CHT

Regaining Strength: A Patient's Journey Back to Elbow Flexion After Brachial Plexus Injury
Valerie Aziegbe, OTR/L, CHT, COEE

From Classroom to Clinic: Aligning the Level II Fieldwork Experience with Hand Therapy Education
Sarah Donley, OTD, MS, OTR/L, CHT, COMT-UL, ITOT | Brenda Bodine, MS, OT, CHT, COMT-UE

Building Confidence, Identifying Needs and Translating Knowledge About Chronic Pain: The Empowering Dynamics of Collaboration
Karen Mainzer, OT, CHT

Use of Bilateral Stimulation within a Multi-Modal Treatment Approach for Complex Regional Pain Syndrome
Rhonda Marsh, OTR/L, CHT, MBA/HCM

Unique Considerations When Treating Upper Extremity Trauma in the Pediatric Population
Michelle Hagenbaugh, MS, OTR/L, CHT

Interprofessional Collaboration for the Conservative Management of an Individual with an Upper Extremity Neuropathy
Eric Trauber, PT, DPT, OCS, CSCS, FAAOMPT | Sabashnee Govender, OTR/L, CHT, CLT-LANA

Collaborating with Purpose: A Hand Therapist's Approach to Changing Lives with Gender-Affirming Care
Jamie Nguyen, OTR/L, CHT | Eugene Gersh, MOT, OTR/L, CHT, COEE

Effect of Aesthetic Appeal and Comfort on Patient Adherence for Orthotic Devices
Trevor Petrie, OTR/L, MOT, CHT

CLINICAL PRACTICE POSTERS

Treatment Recommendations for Diabetes and the Upper Extremity
Hilary Marshall, MSOT, P-OTD, OTR/L | Megan McCray, OTR/L, CHT | Heidi Fischer, OTD, MSOT | Susan Magasi, PhD, FACRM, MS, BScOT, BSc

Nutrition and Other Lifestyle Resources to Support Thoracic Outlet Syndrome Self-Management
Melanie Hubbuck, MS, OTD, OTR/L

Treatment of Partial Hand Absence: From Injury to Functional Prosthetic Use
Julie Klarich, OTR, CHT

The King System: Exploring New Populations; The Role of a Hand Therapist in Breast Cancer Rehabilitation
Sarah Fench, OTR/L, CHT, CLT-LANA | Terence Myckatyn, MD | Kelly Santel, MOTR/L, CHT | Ellen King, OTR, CHT

On a Mission: Helping Pediatric Hands Across Borders
Lauren Mione, MSOT, OTR/L, CHT | Michelle Burke, OTR/L | Katie McQueen, OTD, OTR/L, CHT

A Hands-on Approach to Teaching Future Hand Therapists
Jennifer Radziak, OTD, OTR/L, CHT | Katie Jones, MA, OTR/L, CLT-LANA | Kelsey Picha, PhD, ATC

Implementation of In-hand Manipulation Tests from Prehabilitation to Rehabilitation
Julie Corbett, MS, OTR, CHT | Rose Bankers, OTR/L, CHT, CLT

Serial Casting for Pediatric Upper Extremity Spasticity: A Case Study
Carrie Shotwell, OTR/L, MEd, DHS

Use of Neuromuscular Electrical Stimulation in Newborns with Brachial Plexus Birth Injuries
Jordan Wilson, OTR/L

Hand-in-Hand Support Group: Building a Community
Amy Sitabkhan, OTR, MOT

Treatment for Infants with Brachial Plexus Injury (BPI): A Guide for Rehabilitation Therapists
Krystal L. Vermillion, MOT, OTR/L | Pamela E. Toto, PhD, OTR/L, BCG, FAOTA, FGSA

Current Trends and Strategies to Support Therapist Recommendations for Early Management of Brachial Plexus Birth Injury
Jennifer Wingrat, ScD, OTR/L

DAFRA for Pediatrics: Play Activities for Exercise
Ann Marie Feretti, EdD, Adv, MS, OT, BsC, OT | Steven Koehler, MD, FAAOS | Nathan Hasbani, BA | Megan Horowitz, MS, OTR/L, CHT, CEAS | Victoria Ferrante, OTR/L, CHT

Use of a Novel 3D Printed Dynamic Orthosis to Improve Upper Extremity Function in Children with Cerebral Palsy
Alice Chu, MD | Janelle Lenzo-Werner, MS, OTR/L | Katelyn Prais, MOTR/L | Caitlin Finnegan, MOTR/L

From Rookies to Rockstars: Designing Competency Frameworks for a Hand Therapy Fellowship Program
Wendy Moore, OTR/L, CHT | Brian Kemp, OTR, CHT

Ensuring Health Equity Through a Hand Therapy Screening Tool
Miremonde Joseph, OTD, OTR/L, CHT, CLT

The Process of Creating a Knowledge Share in a Hand Therapy Practice
Sabby Wade, OTD, OTR/L, CHT

Creating Peer Connections Between Clinician Managers to Advance Leadership Skills
Lisa Dominick MS, OTR, CHT

Hand Therapy Resources for the International Therapist: Collaboration to Expand Hand Therapy in Latin America
Carlos Alvarado, OT/L, CHT | Brooke Ochoa, OTR/L, CHT

Bridging Theory and Practice: Empowering OT Students Through a Pro Bono Hand Therapy Clinic
Lisa Owen, OTD, OTR/L, CLT, CHT

Embedding a Culture of Professional Engagement in a Fellowship Program
Sarah Schmeda Kothe, OTD, OTR/L, CHT

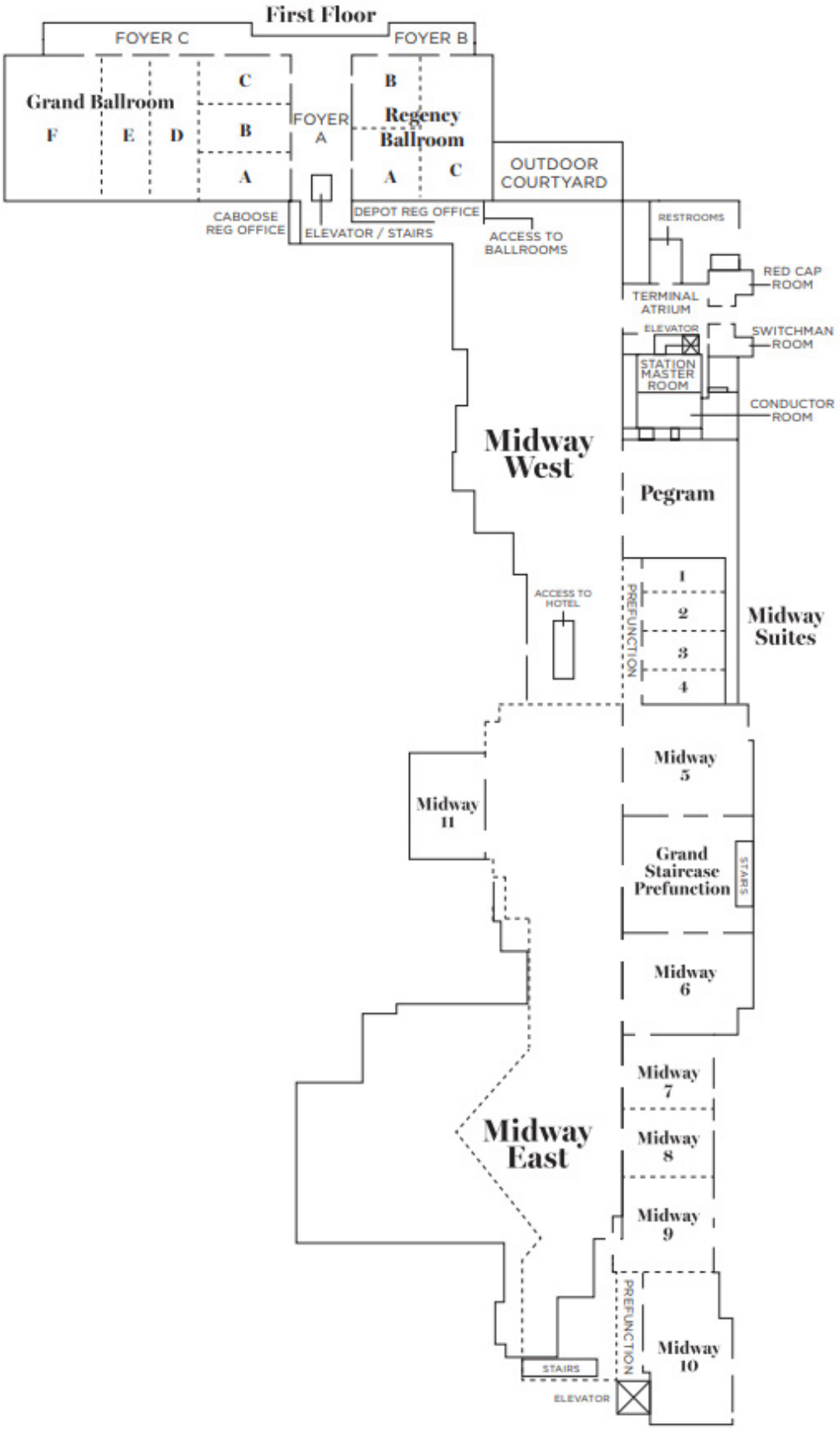
Inclusion of Professional Career Development in an OT Level II Fieldwork Experience
Tyler Henson, OT, CHT

Exploring the Strengths of Introverted Occupational Therapists to Serve as Impactful Hand Therapy Leaders
Emily Gottier, OTR/L, CHT

Preparing the Next Generation: Identifying Barriers to Service in Leadership Roles for Early-Career Therapists
Amanda West, OTR/L, CHT, Cert. DN

Exploring the Lived Experiences of BIPOC Hand Therapists
Laura L. Carlos, MOT, OTR/L, CHT, CEAS I

FLOOR PLAN


First Floor
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OUTDOOR COURTYARD
CABOOSE REG OFFICE
ELEVATOR / STAIRS
DEPOT REG OFFICE
ACCESS TO BALLROOMS
RESTROOMS
RED CAP ROOM
TERMINAL ATRIUM
ELEVATOR
SWITCHMAN ROOM
STATION MASTER ROOM
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Midway 8
Midway 9
PREFUNCTION
Midway 10
STAIRS
ELEVATOR

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www.allardusa.com

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American Hand Therapy Foundation PLATINUM SPONSOR

BOOTH: 131

www.ahtf.org

The mission of the American Hand Therapy Foundation is to improve patient outcomes by promoting evidence-based practice through funding clinical and scientific research and education. We are committed to promoting a culture that respects diversity, inclusion, equity, and justice for all stakeholders involved in the delivery and research of upper extremity care.

American Society of Hand Therapists

BOOTH: 105

www.asht.org

Angular Ortho

BOOTH: 220

www.angularortho.com

Angular Ortho's new products are designed to improve finger flexion contractures. These dynamic orthoses provide warmth and compression with a comfortable design to enable longer wearing times during the day and night. They are scientifically tested to accommodate mild to steep contractures.

Arm Dynamics

BOOTH: 232

www.armdynamics.com

Arm Dynamics provides exceptional prosthetic rehabilitation to upper limb amputees in the U.S. and around the world. With years of specialized clinical experience and continuous involvement in prosthetic research, our team creates outside-the-box solutions that open up new possibilities for people with upper limb loss.

BraceLab SILVER SPONSOR

BOOTH: 135

www.bracelab.com

BraceLab® is a premium orthosis company, and exclusive US Push® distributor, focusing on helping people do what they love, without pain/discomfort. We provide patients and medical professionals with high-quality braces designed for optimal support while maximizing function. Additionally, our Clinicians Classroom offers a wealth of clinical resources for therapists.

BTE
BOOTH: 127

www.btetechnologies.com

BTE offers best-in-class equipment for achieving superior evaluation, treatment, and training outcomes. Expand your rehab services and keep your clients motivated with objective, functional treatment plans. Set your clinic or hospital apart with a fun, interactive experience – helping your clients reach their goals, faster.

Bullseye Brace
BOOTH: 108

www.bullseyebrace.com

Bullseye Brace is a premier manufacturer of orthopedic braces featuring our patented silicone technology and targeted compression. Our innovative braces provide comfortable, effective relief from thumb arthritis, tennis and golfer's elbow, and TFCC injury. Please visit us in booth #301.

CHRISTUS Health
BOOTH: 106

https://careers.christushealth.org/

Dassiet LLC
BOOTH: 215

http://www.dassiet.com

Dassiet is an emerging medical device innovator for splinting and casting. Relied on by clinicians, we deliver a boldly efficient new class of high performance products made from our proprietary blend of biomaterials. We seek to innovate and simplify, to save precious clinician time while improving patient experiences. To learn more about Dassiet and our UCAST and Woodcast product lines, visit: http://www.dassiet.com

Essity Health & Medical SILVER SPONSOR
BOOTH: 129

http://www.essity.com

Essity provides high-quality, innovative wound and incontinence care, orthopedic, and compression products. Our innovative products and solutions, coupled with our expertise, cutting edge technology, and global coverage, allows us to offer a more complete value proposition.

Cost-effective solutions and evidence-based approaches for improved care outcomes allow us to better support residents. Additionally, our customers and partners value our support through state-of-the-art training and education.

Many of our products are also available for ordering through leading group purchasing organizations and distributed by most major medical distributors.

Exploring Hand Therapy
BOOTH: 226

www.exploringhandtherapy.com

Exploring Hand Therapy (EHT) is an on-line education organization which offers the largest variety of hand and upper extremity courses in the world designed for Occupational Therapists, Certified Hand Therapists, and other Medical Professionals. Learn and Earn your CEUs and Certifications with over 100 courses and products. Visit us at www.exploringhandtherapy.com to learn more.

Fabrication Enterprises Inc.
BOOTH: 136

www.fabent.com

Fabrication Enterprises Inc is a manufacturer, importer, and master distributor of products for hand therapy, physical therapy, occupational therapy, chiropractic, athletic training, home care, and more. FEI's products are sold to hospitals, clinics, fitness centers, professionals, etc. by a network of dealers. For more information, visit www.FabEnt.com or email sales@fab-ent.com.

GripAble Inc
BOOTH: 209

www.gripable.co

GripAble is the company behind GripAble Pro – the 2-in-1 assessment and training device for the upper extremity. The handheld device and app deliver activities targeting different aspects of grip, release, wrist, and forearm movements, encouraging engagement, repetition, and adherence. GripAble Pro is a modern dynamometer, with proven accuracy, sensitivity, and robustness.

Gripz, LLC
BOOTH: 113

http://www.gripzllc.com

Gripz, LLC is a small company of two seniors who experience hand osteoarthritis and seek solutions. We have developed a series of adaptive devices for small handheld tools. Our devices allow users to maintain a safe, "C" position while eating, writing, painting, crocheting, guitar playing, and more. The devices are multi-use and durable.

Hand in Mind
BOOTH: 202

www.handinmind.com

Hand in Mind is a therapist-owned company specializing in creative, custom-made treatment activities, anatomy education, and the largest selection of hand related jewelry on the web. Please come visit our booth to see what's new!

Hand Rehabilitation Foundation
BOOTH: 103

www.handfoundation.org

Hand Rehabilitation Foundation promotes research & education for physicians & therapists working with children & adults with hand disorders & conditions. HRF sponsors an annual symposium known as The Philadelphia Meeting, with a faculty of surgeons and therapists teaching & demonstrating current advances in hand rehabilitation correlated with hand surgery.

Hand Therapy Certification Commission GOLD SPONSOR
BOOTH: 132

www.htcc.org

The Hand Therapy Certification Commission, Inc. (HTCC), is a not-for-profit credentialing agency established in 1989 to provide a voluntary certification program in hand therapy. Hand therapy is an advanced clinical specialty for rehabilitation of the upper limb in the fields of occupational therapy (OT) and physical therapy (PT).

Handithings LLC
BOOTH: 248

www.handithings.com

HandiThings was founded by a licensed COTA who, through her 30+ years of experience, invented all our products. Our innovative products are ideal for the classroom, home & clinic. These include the patented HandiWriter and our uniquely designed therapeutic weights which have proven very effective for essential tremor relief as well as many other therapeutic needs.

Hanger Clinic
BOOTH: 222

www.hangerclinic.com

Hanger Clinic is the leading national provider of prosthetic and orthotic care, creating customized solutions for people of all ages to promote functional independence and maximize quality of life. The Upper Limb Program fabricates state-of-the-art prosthetic devices whether passive, body-powered, myoelectric, hybrid or activity-specific, at any level of amputation, from shoulder girdle to digit.

Hely & Weber

BOOTH: 228

www.hely-weber.com

Hely & Weber is the only bracing company dedicated to bringing innovative upper extremity designs to the market. Our well-established line of elbow, wrist, and hand orthoses are excellent solutions to use in conjunction with custom fabrication. Come see us at booth 228!

Joint Jack Company

BOOTH: 229

www.jointjack.com

The Joint Jack Company specializes in products effective for the rehabilitation of the hand and upper extremity. The products we offer include splints for full finger extension, correction of flexion deformities, and a solution to RSD(CRPS) through stress loading to the tissues.

Kinetec USA, Inc GOLD SPONSOR

BOOTH: 210

www.kinetecusa.com

Manosplint® is the hand therapy brand of Kinetec. We offer a complete range of thermoplastics and accessories. Kinetec offers unique printing technology, precuts as well as custom options using Manosplint thermoplastics. New to Kinetec is X-Lite a non-toxic biocompatible and biodegradable thermoplastic material. X-Lite has been engineered to benefit the environment, your health and your patients.

Lafayette Instrument Company

BOOTH: 231

www.lafayetteinstrument.com

For more than 75 years, professionals in rehabilitation, temporary staffing, human resources, occupational medicine, and other professions have come to trust Lafayette Instrument for their evaluation and assessment needs. Our commitment to these markets is underscored by the investments that we have made in quality and innovative products.

Limb Lab SILVER SPONSOR

BOOTH: 230

http://www.limblab.com

Limb Lab is an independently-owned and -operated prosthetic and orthotic company that provides personal, creative, and cutting-edge solutions to the functional challenges of limb loss and injury.

We thrive on artistry and innovation to create the right tool and the right fit.

We promise to listen to you, to respect you, to support and encourage you, and to treat you, and the people who support you, like family. We can't wait to create with you!

MuscleCare

BOOTH: 128

www.getmusclecare.com

MuscleCare is the ONLY natural, root-cause, sub-topical pain relief, with a triple-action formula that is clinically proven to reduce spasms, inflammation, and pain, restore muscle function, and get you back to life.

Backed by three published double-blind studies that proved the following...

1. MuscleCare outperformed the leading national brands and placebo including Biofreeze and IcyHot
2. MuscleCare is safe to use when a woman is pregnant or nursing
3. MuscleCare outperformed Voltaren while being drug-free

Naked Prosthetics SILVER SPONSOR

BOOTH: 112

www.npdevices.com

Naked Prosthetics engineers functional, high-quality finger and partial-hand prostheses that get end-users back to work and activities of daily living. We partner with Certified Prosthetists, therapy practitioners, physicians, and surgeons to facilitate our innovative devices — the PIPDriver™, MCPDriver™, ThumbDriver™, and GripLock Finger™. We truly believe: It's All About Function.

North Coast Medical

BOOTH: 121

www.ncmedical.com

For nearly four-decades, North Coast Medical, Inc. (NCM) has manufactured, supplied and distributed a broad range of industry-leading product lines across a continuum of rehabilitation medical care. Servicing the needs of in-patient/out-patient hospitals, clinics, private practice, IDN's and consumers, NCM is a recognized leader in Occupational, Physical and Hand Therapy medical markets. In addition to over 4000 proprietary and exclusive products, we also distribute some of the most recognized and dynamic brands in the rehabilitation medical sector.

Orfit Industries America

BOOTH: 233

www.orfit.com

Orfit is a leader and innovator in the manufacture of thermoplastic materials for orthotic fabrication. We are dedicated to developing and producing materials that enhance your orthoses and help your patients. We are also dedicated to supporting and educating clinicians to help design comfortable and effective orthoses for their patients.

OrthoPress Inc

BOOTH: 126

https://orthopress.com/

OrthoPress makes the FingerPress to help people with bent fingers straighten them again so they can get back to doing what they love.

OrthoRPM

BOOTH: 115

www.ortho-rpm.com

OrthoRPM is dedicated to revolutionizing rehabilitation for patients, surgeons, and therapists by bringing smart technology to therapy to improve function, outcomes, and satisfaction. Our remote therapy monitoring gr!p device optimizes hand strength and dexterity, while tracking progress to give patients and their providers critical information to enhance therapy results.

Ossur Americas

BOOTH: 110

https://www.ossur.com/en-us/prosthetics/products?categories=Arms

Known for developing innovative upper limb prosthetic devices, Össur's Touch Solutions, are designed to help people with upper limb deficiencies live a Life Without Limitations. We welcome you to visit our booth to learn more about our i-Limb® and i-Digits™ technology along with Livingskin. For more information, please visit our website https://www.ossur.com/en-us/prosthetics/touch-solutions.

P & O Care Ottobock.care

BOOTH: 213

http://www.pandocare.com

Performance Health

BOOTH: 148

www.performancehealth.com

Performance Health is a leader in consumer healthcare & the largest global manufacturer & distributor of products to the rehabilitation & hand therapy markets. The company's products are sold to leading healthcare facilities & practitioners. Its market-leading brands, which are sold in over 100 countries, include TheraBand®, Cramer®, Sammons Preston® & Rolyan®. Performance Health is headquartered in the greater Chicago, Illinois area, with significant operations both in the US & internationally.

Pillet Hand Prostheses

BOOTH: 122

www.pillet.com

The Pillet passive function aesthetic prosthesis has become a major component of the comprehensive professional and social rehabilitation program for amputees. The prostheses are custom designed to provide an aspect of normality to a disfigured hand while serving an important functional role.

Pivotal Health Solutions

BOOTH: 124

www.pivotalhealthsolutions.com

Pivotal Health Solutions is based out of the plains of Watertown, SD and in the mountains of Springfield, OR where we build products from the ground up. From baseline to beautifully customized products, our family of engineers, professionals and skilled craftsmen and women put their hearts into each and every product we build.

We are constantly moving forward, striving to deliver unmatched value to our customers by fostering innovative thinking and pushing the creative barriers of product selection, performance and price.

Point Designs SILVER SPONSOR

BOOTH: 223

www.pointdesigns.com

Point Designs is a team of industry experts dedicated to the innovation of partial hand prosthetic devices. We develop and manufacture robust prosthetic fingers that provide prosthetists with solutions to meet the unique needs of each patient. We specialize in durable prostheses for people with partial hand amputation.

Select Medical

BOOTH: 114

www.careers.selectmedical.com

Select Medical is a nationally prominent, locally driven provider of outpatient physical rehabilitation and the largest employer of certified hand therapists. Through our family of brands — more than 1,800 centers in 39 states and the District of Columbia — we take pride in creating an exceptional patient experience.

Shocktek SILVER SPONSOR

BOOTH: 219

www.shocktek.com

Dr. Spitzer developed the Shocktek glove for decreasing pressure on the median nerve and reducing symptoms of carpal tunnel syndrome. The design is unique in protecting the nerve from external pressure. Shocktek is a company that produces and sells gloves based upon this design. Special palm padding material and design distributes pressure away from the nerve. Shocktek gloves are useful for sports, industrial and occupational use and people that use crutches and wheelchairs.

Silver Ring Splint Company

BOOTH: 130

www.silverringsplint.com

The Silver Ring Splint Company manufactures custom-fit finger splints for individuals needing an aesthetic, cost-effective, permanent splint. SilverRing™ splints are available in sterling silver and 14kt gold. With our EZ-Sizer measuring system, it has never been easier to get a splint. Come see us at Booth #130

Squegg

BOOTH: 224

www.mysquegg.com

Squegg is a first of its kind digital dynamometer and a comprehensive hand exerciser. It helps to strengthen hand muscles and improve on important hand vitals including the grip strength, pinch strength, endurance and coordination through its range of exercises and activities on the app.

Tenzr Health

BOOTH: 221

http://www.tenzrhealth.com

Make rehab an epic game. Tenzr gamifies the rehab process using state of the art wearable movement tracking technology and interactive games. Push patients' endurance, strength and range of motion through fun and engaging classic video games like Pong and Brick Breaker. Tenzr takes rehab science to the next level.

Therabath Professional Paraffin Products

BOOTH: 120

www.therabath.com

Since 1962, the Therabath Professional Paraffin Bath has been manufactured, hand assembled and tested to FDA Class II Medical Device standards in our Minnesota, USA facility. Therabath focuses on paraffin therapy benefits and proper treatment technique education, emphasizing our passion for returning chronic pain sufferers to healthy, active lifestyles!

Thumb Anchor Sports Gloves

BOOTH: 111

www.thumbanchor.com

The Thumb Anchor is a glove with built-in thumb support designed by a Hand Surgeon with over 30 years of experience. While there are many thumb braces on the market, there are few options available that allow you to stay active while wearing them. Thumb Anchor is designed to give your active life back with less pain.

United Brachial Plexus Network

BOOTH: 204

www.ubpn.org

The United Brachial Plexus Network is an organization formed to inform, support, and unite families and those concerned with brachial plexus injuries (BPI) and the treatment and prevention of BPI worldwide. UBPN works to: increase awareness of and work towards the prevention of brachial plexus birth injuries; provide support for individuals and families affected by brachial plexus injuries; educate medical and legal professionals, politicians, and the general public on the issues surrounding this disability; and create and maintain a network of information and support that will unite all those concerned with this injury worldwide.

POLICIES

ASHT PROGRAM CODE OF CONDUCT

All ASHT events aim to be inclusive of the largest number of contributors, with the most varied and diverse backgrounds possible. As such, ASHT is committed to providing a professional, collegial, safe, supportive and respectful meeting environment (virtual and face-to-face), regardless of a person's race, color, ethnicity, national origin, citizenship status, age, religion, disability status, gender, gender identity, sexual orientation, genetic information, physical appearance or other characteristics ("personal characteristics"). ASHT expects individuals to uphold the professional and educational purposes of ASHT and its events by respecting the rights, privacy, safety and dignity of all persons. ASHT expects individuals to exercise professionalism, consideration and respect in their speech and actions. ASHT expects individuals to refrain from harassing speech and other harassing behavior

SCOPE AND APPLICATION

The Program Code of Conduct and this Policy apply to any virtual gathering or in-person event that is hosted or sponsored by ASHT, including but not limited to virtual educational symposia, exhibits, committee meetings, written comment and discussion groups, professional gatherings and platforms and setting ancillary thereto (each an "ASHT Event"). This Policy applies to any and all participants in ASHT Events, including but not limited to employees, members, volunteers, guests, vendors, contractors, exhibitors, faculty and other attendees (each a "Participant").

UNACCEPTABLE BEHAVIOR

Unacceptable behavior is defined as:

- Unwelcome and uninvited attention or contact with another Participant;
- Verbal or written comments, or visual images, that are sexually suggestive, or that denigrate or show hostility or aversion toward an individual, or group of individuals, or that create an intimidating, hostile or offensive environment, or that unreasonably interfere with an individual's ability to participate in the ASHT Event;
- Unwelcome sexual advances, requests for sexual favors, or other unwelcomed physical, verbal, visual, or other conduct of a sexual nature;
- Inappropriate, unnecessary, or irrelevant use of nudity and/or sexual images; Intimidating, harassing, abusive, defamatory, profane, discriminatory, derogatory or demeaning speech;
- Harmful or prejudicial verbal or written comments or visual images related to personal characteristics;
- Deliberate intimidation or stalking;
- Harassing photography or recording;
- Sustained or repeated disruption of talks or other events;
- Express or implied threat of physical or professional harm;
- Actual or threatened personal or professional retaliation for a rejection or report of unacceptable behavior;
- Failing to stop unacceptable behavior when requested by a Participant or ASHT.

REPORTING UNACCEPTABLE BEHAVIOR

Any Participant whose safety is threatened or violated is urged to contact local law enforcement immediately. In addition, any Participant who feels unsafe or experiences unwelcome conduct, who observes or experiences unacceptable behavior, or who believes there has been a violation of this Policy, is encouraged to come to the registration desk immediate to report this violation to a member of the ASHT Staff, or send an email to meetings@asht.org or call (856) 380-6851.

CONSEQUENCES OF REPORTED UNACCEPTABLE BEHAVIOR

Upon receiving a report of unacceptable behavior, ASHT's first priority will be the safety and security of Participants. In order to preserve a safe, educational environment, ASHT reserves the right to remove a Participant from an ASHT Event, suspend or terminate specific features available to a Participant or to suspend or terminate the Participant's entire account. In addition, ASHT reserves the right to prohibit Participant attendance at any future ASHT Event.

Violation of this Policy, as determined by ASHT in its sole discretion, is grounds for any action that ASHT deems appropriate, including but not limited to warning the offender, denying the offender access to an ASHT Event (including revoking or denying registration to an ASHT Event), suspending or terminating the offender's access to the ASHT Event, and barring the offender from other ASHT Events. ASHT reserves the right to take whatever action it, in its sole discretion, deems appropriate, with respect to the investigation of any matters related to this Policy.

Any person who is denied access to or whose access is terminated during an ASHT Event based on this Policy may request that ASHT review the matter after the ASHT Event has concluded. However, ASHT's action will be effective immediately and will continue until and unless ASHT issues a contrary decision. Unless a contrary decision is issued, any person who is denied access to or removed from an ASHT Event based on this Policy will not be eligible for a refund of any registration fees paid for access to or participation in the ASHT Event. By registering for an ASHT program (virtual or in-person), you acknowledge your registration is subject to ASHT's Program Code of Conduct Policy. If you have any questions regarding this policy or attendee conduct, please contact meetings@asht.org or asht@asht.org.

POLICIES

ANTITRUST AVOIDANCE

United States antitrust law is a collection of federal and state government laws, which regulates the conduct and organization of business corporations, generally to promote fair competition for the benefit of consumers. Antitrust law prohibits the exchange of information among competitors or collusive practices that would minimize competition or result in the restraint of trade.

14.2.1 Potential Areas for Antitrust Violation

- pricing of services
- surveys • membership exclusion or expulsion
- product standards
- code of ethics
- standard setting
- articles, publications, website
- discussion forums • meetings, speakers
- certification • tradeshow and advertising exclusion
- referrals and recommendations
- discount programs

To ensure that the Society and its members comply with antitrust laws, the following principles will be observed:

- The Society or any division, committee, task force or activity of the Society shall not be used for the purpose of bringing about or attempting to bring about any understanding of agreement, written or oral, formal or informal, expressed or implied, among two or more members or other competitors with regard to prices or terms and conditions of contracts for services or products. Therefore, discussions and exchanges of information about such topics will not be permitted at Society meetings or other activities.
- There will be no discussions discouraging or withholding patronage or services from or encouraging exclusive dealing with any supplier or purchaser or group of suppliers or purchasers of products and services, any actual or potential competitor or group of actual potential competitors, or any private or governmental entity.

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4123309	IMPACT OF A MUSCULOSKELETAL HEALTH FOR MUSICIANS (MHM) PROGRAM FOR PROFESSIONAL AND MUSICIAN STUDENTS	B. Basseri, S. Streeter, J. Gutierrez Naranjo, A. Wolff
4123492	COMPREHENSIVE PSYCHOSOCIAL EVALUATION IN HAND THERAPY – IT'S MORE THAN DEPRESSION!	K. Iseminger
4123514	EFFECTIVENESS OF A WORK CONDITIONING-WORK HARDENING PROGRAM ON PATIENTS RECEIVING HAND THERAPY	M. Auch, P. S. Furgason, L. Myers, T. Denninger, K. Melby, A. Lutz
4123989	CRITICALLY APPRAISED TOPIC: WHAT IS THE PREVALENCE OF POST-TRAUMATIC STRESS DISORDER (PTSD) IN OLDER ADULTS AFTER A FALLS-RELATED INJURY	C. Peters
4124009	PREFABRICATED ORTHOSES FOR THE CONSERVATIVE MANAGEMENT OF TRIANGULAR FIBROCARTILAGE COMPLEX INJURIES: A LITERATURE REVIEW	D. Plutschack, T. Aeschliman, J. Lewis, M. Plantikow, J. Levis
4124087	BIOPSYCHOSOCIAL EDUCATION FOR INDIVIDUALS WITH SUBACUTE AND CHRONIC PAIN IN THE HAND, WRIST, OR ELBOW: A TELEHEALTH PILOT STUDY	A. J. De Maagd, G. K. Lee
4124098	CRITICAL APPRAISAL PAPER: "SENSORY INTERVENTIONS ON MOTOR FUNCTION, ACTIVITIES OF DAILY LIVING, AND SPASTICITY OF THE UPPER LIMB IN PEOPLE WITH STROKE: A RANDOMIZED CLINICAL TRIAL"	L. Hirst, S. Doerrer
4124143	THE EFFICACY OF A VERSATILE CUSTOM ORTHOSIS DESIGNED FOR THE STIFF HAND: A CLINICAL CASE STUDY	C. Eddow
4124149	ESTABLISHING POPULATION NORMS FOR THE MACHAND PERFORMANCE ASSESSMENT 2.0: A CLINICAL MEASUREMENT STUDY	B. Nolan-Cairns, A. Kanotra, Z. Edger-Lacoursiere, C. Su, H. Nguyen, E. Zheng, M. Li, T. Packham
4124181	RETHINKING REPORTING ON RETURN TO WORK FOR UPPER EXTREMITY PATIENTS: DISCREPENCIES IN RATING WORK DEMAND	J. T. Nguyen, G. Weinstock-Zlotnick
4124223	GRADED MOTOR IMAGERY IN COMPEX HAND REHABILITATION	C. Eddow
4124234	PREOPERATIVE EDEMA MANAGEMENT OF THE BURNED HAND	J. X. Lucio
4124237	PAVING THE WAY FOR LARGE-SCALE HAND THERAPY RESEARCH: A RESEARCHER NETWORK ANALYSIS	K. Loomis, T. Khese, E. Lin, S. Roll
4124284	ENHANCING PEDIATRIC GRIP STRENGTH ASSESSMENT: THE DEVELOPMENT AND PRELIMINARY EVALUATION OF A CHILD-FRIENDLY DYNAMOMETER	R. Shanshal, D. Al-Sammak, T. Packham
4124287	INTER-RATER RELIABILITY OF VIDEO BASED RANGE OF MOTION ASSESSMENTS IN POST-RECONSTRUCTION BRACHIAL PLEXUS PATIENTS	S. DeMartini, E. Sane, D. Brogan, C. Dy
4124317	PERSPECTIVES AND PRACTICES REGARDING NERVE AND TENDON TRANSFER SURGERIES FOR TETRAPLEGIA: AN INTERNATIONAL SURVEY	F. Laurent, P. K. Firouzbakht, A. Liao, J. Dengler, C. Kennedy, M. Berger, M. Botros, I. K. Fox

CONTROL ID: 4099415

TITLE: RELIABILITY OF THE CORBETT TARGETED COIN TEST

AUTHORS (FIRST NAME INITIAL, LAST NAME): J. Beasley[1], L. Stout[1], S. Jackson[1], A. Range[1], A. Kagande[1], C. Floyd-Slabaugh[1], K. Anderson[2], S. Corder[1]

INSTITUTIONS (ALL):

1. Occupational Science and Therapy, Grand Valley State University, Allendale, MI, United States.
2. Statistics, Grand Valley State University, Allendale, MI, United States.

ABSTRACT BODY:

Purpose: Manual dexterity is important for performing many daily functional activities.The CTCT measures aspects of dexterity that are not currently measured by most other assessments including palm-to-finger translation and proprioceptive target placement important to many occupations (examples: eating a handful of popcorn or picking up a pen and moving it into position for writing).The purpose of this study was to determine inter-rater reliability, intra-rater reliability, and test-retest reliability of the Corbett Targeted Coin Test (CTCT).

Methods: Adult participants were recruited and those meeting the inclusion criteria provided consent. The inclusion criteria consisted of participants who were over 18 years of age, non-institutionalized, community-dwelling, able to complete active fist closure, and able to perform finger-to-palm translation of 20 coins. Subjects (n=27) were tested by the same two trained researchers (one researcher for intra-rater reliability and two researchers for inter-rater reliability) with a five-minute break between tests, following CTCT standardized testing procedures. A second group of subjects (n=16) completed the test with one researcher and returned one week later for test-retest reliability to limit practice effects. Both the dominant (D) and nondominant (ND) hands were tested.

Results: Intraclass Correlation Coefficients (ICC) results demonstrated good intra-rater reliability (r= .81 and r=.82 D, and r=.78 ND), good inter-rater reliability (r= .99 and r=1.00 D, and r= .99 and r=1.00 ND), and moderate test-retest reliability (r= .54 D and r= .50 ND). When compared to other standardized dexterity assessments, the CTCT demonstrated comparable inter-rater reliability (r =0.98 to 0.995) intra-rater reliability (0.68 to 0.99) and test/retest reliability (r= 0.37 to 0.99).

Conclusion: Therapists can be confident in the reliability of using the CTCT when evaluating and monitoring patient dexterity with palm-to-finger translation and proprioceptive target placement.

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Fig. 1. The Corbett Targeted Coin Test: The CTCT requires the individual to translate coins from the palm of their hand to fingertips before placing coins into slots of varying orientations for proprioceptive target placement.

IMAGE CAPTION:

TABLE:

Note: The PDF table below is only an approximation of the HTML content and may not match formatting exactly.

Reliability Results CTCT		
Inter-Rater Reliability	Trial 1 (Evaluator 1 & Evaluator 2)	Trial 2 (Evaluator 1 & Evaluator 2)
Dominant Hand	r= 1.00	r= .99
Non-Dominant Hand	r= .99	r=1.00
.	.	.
Intra-Rater Reliability	Evaluator 1 (1st & 2nd Trial)	Evaluator 2 (1st & 2nd Trial)
Dominant Hand	r= .82	r= .81
Non-Dominant Hand	r= .78	r= .78
.	.	.
Test-Retest Reliability	1st & 2nd Trial	.
Dominant Hand Non-Dominant Hand	r= .54 r= .50	.
r - ICC Dominant hand is Right hand and non-dominant hand is Left hand		

TABLE FOOTER: r - ICC
Dominant hand is Right hand and non-dominant hand is Left hand

TABLE TITLE: Reliability Results CTCT

TITLE: RELIABILITY OF THE CORBETT TARGETED COIN TEST

CONTROL ID: 4101405

TITLE: COMPARISON BETWEEN THE INTRINSIC GLOVE AND SURGEON PLASTER SPLINT APPLICATION FOR THE POSITION OF IMMOBILIZATION OF THE METACARPOPHALANGEAL JOINTS

AUTHORS (FIRST NAME INITIAL, LAST NAME): J. D. Stehr[1], P. Bhandari[1], W. lineaweaver[1], A. James[1], R. Torres-Guzman[1], W. thayer[1]

INSTITUTIONS (ALL):

1. Plastic Surgery, Vanderbilt University Medical Center, Nashville, TN, United States.

ABSTRACT BODY:

Purpose: Initial splinting of traumatized hands in protected positioning protects injured structures and promote optimal biomechanics of the hand. Plaster is often utilized to achieve and maintain consistent metacarpophalangeal joint positioning but can be inconsistent in application and result in inaccurate positioning. Poor outcomes can result from prolonged improper positioning. Our novel standardized "Intrinsic Glove" allows immediate, full range, active motion while providing elastic and semi-rigid properties that allow the patient to return to the desired position at rest. The purpose of the study is to evaluate the effectiveness and practicality of the Intrinsic Glove in achieving standardized safe positioning as compared to traditional plaster splinting in preparation for a clinical trial using the Intrinsic Glove to manage metacarpal fractures.

Methods: Our study compares at least 8 applications by hand surgeons of the Intrinsic Glove to 8 applications of a plaster splint for safe immobilization, aiming to establish a mid-range position of safety with approximately 60 degrees of index metacarpophalangeal joint flexion. There will be two groups: one which utilized the Intrinsic Glove and a control group which utilized the traditional forearm based, volar, plaster splint. The applications will be timed, and goniometric measurements obtained at initial application and again after 10 minutes in each respective group.

Results: IRB submission STEHRJD02012024115833. Pending anticipated approval within by July 1, 2024. Preliminary results indicate significant benefit in using the glove. Hypothesizing less than one minuate application time of the glove compared to approximately 6 minutes application time of the forearm based plaster splint with equitable positioning of the metacarpophalangeal joints. The study will be completed with full reporting and presenting potential before the annual meeting.

Conclusion: The Intrinsic Glove proved a potential alternative to traditional plaster splinting for reliably achieving acceptable ranges of standardized safe positioning of the metacarpophalangeal joints in statistically significant faster time.

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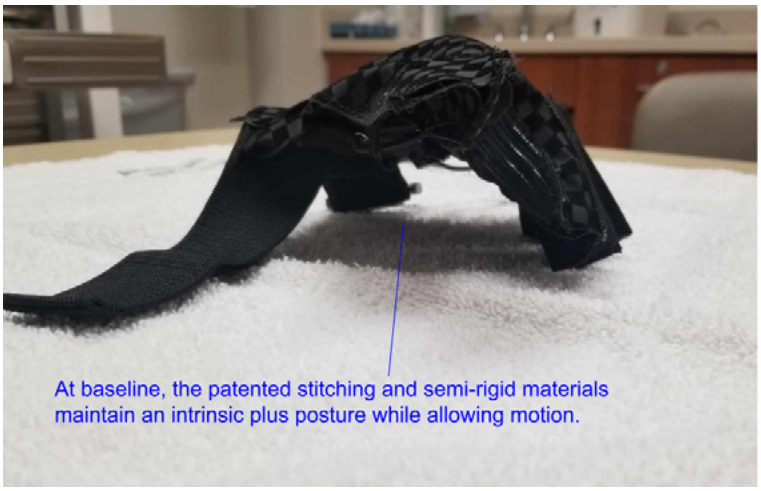
At baseline, the patented stitching and semi-rigid materials
maintain an intrinsic plus posture while allowing motion.

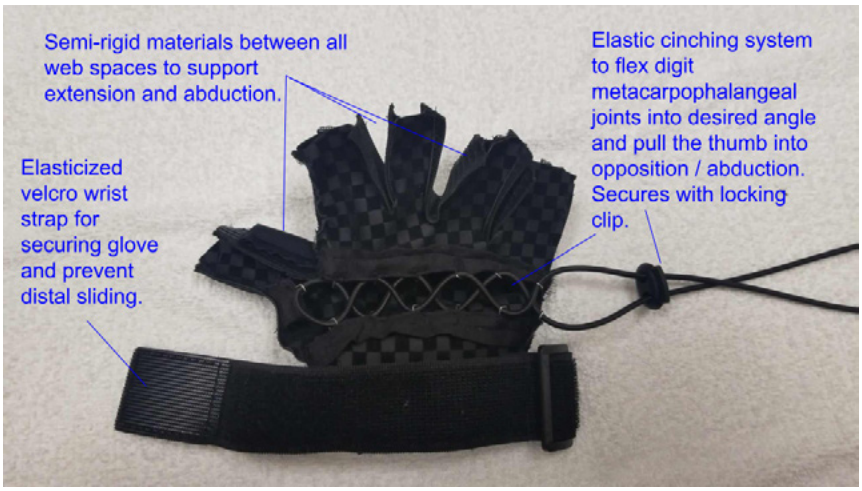
Semi-rigid materials between all web spaces to support extension and abduction.
Elasticized velcro wrist strap for securing glove and prevent distal sliding.
Elastic cinching system to flex digit metacarpophalangeal joints into desired angle and pull the thumb into opposition / abduction. Secures with locking clip.

IMAGE CAPTION:
(no table selected)
TITLE: COMPARISON BETWEEN THE INTRINSIC GLOVE AND SURGEON PLASTER SPLINT APPLICATION FOR THE POSITION OF IMMOBILIZATION OF THE METACARPOPHALANGEAL JOINTS

CONTROL ID: 4102368

TITLE: MEDIAN NERVE PRESSURE WITH DIFFERENT GLOVES IN CYCLING: A COMPARATIVE STUDY

AUTHORS (FIRST NAME INITIAL, LAST NAME): J. Beasley[1], G. Wisby[3], W. Reffeor[3], Y. Lee[2]

INSTITUTIONS (ALL):

1. Occupational Science and Therapy, Grand Valley State University, Allendale, MI, United States.
2. School of Engineering and Department of Physical Therapy and Athletic Training, Grand Valley State University, Grand Rapids, MI, United States.
3. School of Engineering, Grand Valley State University, Grand Rapids, MI, United States.

ABSTRACT BODY:

Purpose: The purpose of this study is to evaluate the effectiveness of various cycling glove designs in reducing median nerve pressure during cycling, as compared to a control group without gloves. The study aims to identify the glove features that contribute the most to pressure reduction.

Methods: This pilot study involved thirteen participants that provided consent. Participants were given three conditions (bare hand, off the shelf biking glove, and the ShockTek™ glove) for testing on a stationary bike in a random order. The novel pliance® pressure sensor measured the pressure over palm and median nerve area when attached securely to the right side of the handlebar. The center of pressure calculated by the pliance-x software served as a reference for identifying the central palm region. This alignment was further corroborated through the manual recording of the center of the palm during testing. The average pressure over the median nerve region was calculated over ten pedal strokes at a speed of approximately 60 rpms.

Results: Analysis revealed that for bare-handed conditions, the peak pressure was typically observed where the median nerve traverses through the palm of the hand. The average pressure on the median nerve area across all subjects was 51.96 kPa (range: 30.02 – 70.12 kPa). While typical gloves showed no significant impact on the pressure over the median nerve, median nerve relief sport gloves (ShockTek™) demonstrated a notable reduction in pressure, with an average of 20.23 kPa (range: 7.26 – 36.83 kPa), corresponding to a 61% decrease in median nerve pressure during cycling.

Conclusion: While cycling offers numerous health benefits, it also presents potential risk factors for the development or exacerbation of Carpal Tunnel Syndrome. This condition is usually associated with the ulnar nerve, but symptoms related to the median nerve have also been reported. Cyclists frequently mitigate these risks with specialized cycling gloves to provide protection and comfort by minimizing friction, vibrations, and pressure on the hands during rides. The findings with this study underscore the potential efficacy of median nerve relief sport gloves (ShockTek™) in alleviating pressure on the median nerve during cycling activities. This reduction should be considered when therapists suggest gloves for individuals reporting CTS symptoms during biking and possibly other activities that place pressure on the median nerve at the carpal tunnel.

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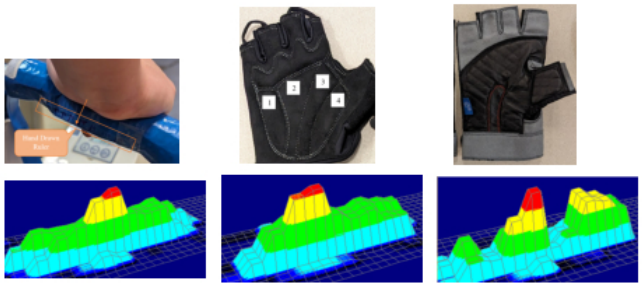

Bare Hand | Traditional Glove | ShockTek™ Glove

Three-dimensional visualization of pressure during biking reveals a pronounced void over the median nerve area with the ShockTek™ Glove.

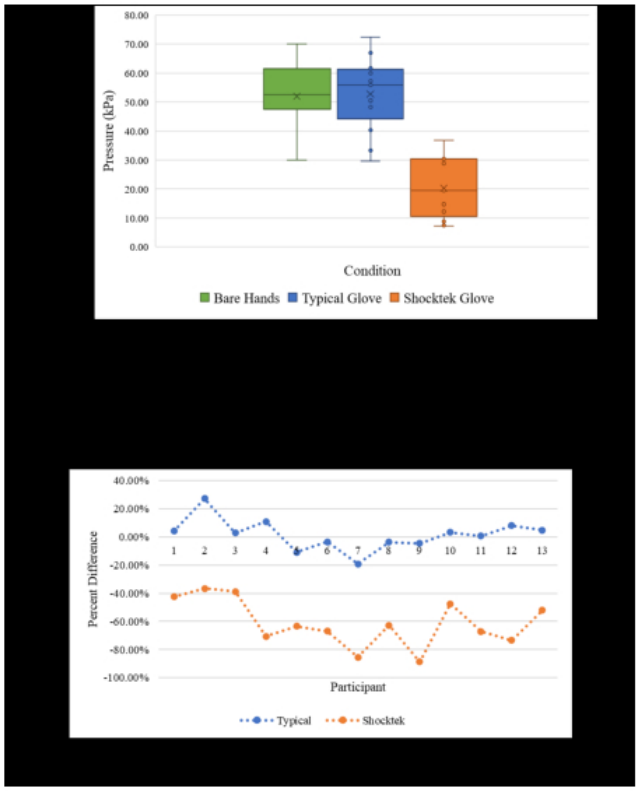
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Pressure (kPa)
Condition
Bare Hands
Typical Glove
Shocktek Glove
40.00%
20.00%
0.00%
-20.00%
-40.00%
-60.00%
-80.00%
-100.00%
Percent Difference
1
2
3
4
5
6
7
8
9
10
11
12
13
Participant
Typical
Shocktek

IMAGE CAPTION:
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TITLE: MEDIAN NERVE PRESSURE WITH DIFFERENT GLOVES IN CYCLING: A COMPARATIVE STUDY

CONTROL ID: 4102873

TITLE: ENHANCING HAND FUNCTION RECOVERY AFTER EXTENDED RADIAL FOREARM FREE FLAP: A CASE SERIES AND REVIEW OF AN INNOVATIVE THERAPY PROTOCOL

AUTHORS (FIRST NAME INITIAL, LAST NAME): P. Assi[1], J. D. Stehr[1], R. Torres-Guzman[1], V. Bailey[2], A. James[1]

INSTITUTIONS (ALL):

1. Plastic Surgery, Vanderbilt University Medical Center, Nashville, TN, United States.
2. College of Medicine, Florida State University, Tallahassee, FL, United States.

ABSTRACT BODY:

Purpose: The Extended Radial Forearm Free Flap (E-RFFF) presents distinct rehabilitation challenges compared to traditional flaps due to its larger size and the increased risk of donor site morbidity. Traditional rehabilitation often relies on prolonged immobilization to minimize graft loss, potentially leading to complications such as joint stiffness and swelling. Our novel hand therapy protocol addresses these issues by emphasizing early active motion, thereby safeguarding the donor site while also aiming to reduce complications. The study aims to report and evaluate a novel hand therapy protocol for enhancing recovery in E-RFFF patients by prioritizing early active motion and minimizing complications, aiming to improve overall functional outcomes compared to traditional rehabilitation methods.

Methods: We conducted a retrospective study at Vanderbilt University Medical Center on patients who underwent E-RFFF from 2022 to 2024. Our sample included eight patients for whom we tracked demographic characteristics, range of motion, strength, and sensation. Developed in collaboration with occupational therapy experts, our protocol promotes early active motion in stages tailored to each phase of postoperative recovery. The protocol starts with digit and thumb active range of motion (AROM), advancing to complex movements like the "Dart Thrower's Motion" for wrist articulation to enhance mid-carpal articulation while minimizing donor site tension. Therapy protocols adapted to the graft cover wound care, functional use, and exercises for flexibility, strength, and proprioception, aiming to preserve graft integrity and support hand and wrist functional recovery.

Results: The study included eight patients, all of whom underwent E-RFFF for phalloplasty. Initial post-operative assessments (within 7 days) showed an average pain level of 3.37. Specific challenges included limited thumb opposition in 12.5% of patients, reduced range of motion in composite digital flexion and extension (25% of patients for each), as well as decreased wrist and forearm mobility and grip strength (37.5% scored ≤3 on the MMT scale). However, by 30 days post-operation, notable improvements were observed. Pain levels decreased to an average of 2.28, with all patients achieving recovery within normal functional limits for thumb opposition, digital flexion and extension, wrist and forearm mobility, grip strength, and sensation to light touch. Importantly, we observed effective preservation of sensory function, and despite the early mobilization protocol, there was no increase in edema, further highlighting the protocol's safety and efficacy. Additionally, no increase in edema was observed between the first and second follow-ups despite an early mobilization protocol. All skin grafts and acellular dermal matrix (ADM) were successfully integrated.

Conclusion: The innovative hand therapy protocol suggests a promising approach to managing the unique recovery needs of E-RFFF patients. Facilitating early ROM not only preserves graft integrity but also addresses the risk of edema, enhancing overall functional outcomes. This protocol may serve as a benchmark for postoperative care in similar surgical contexts, advocating for integrating early mobilization into standard practice.

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Donor site without skin substitute

Donor site after application of skin substitute

Split thickness skin graft application showing remaining ulnar area of native skin.

Volar aspect split thickness skin graft.

Split thickness skin graft dorsal aspect.

Split thickness skin graft status post 6 weeks.

IMAGE CAPTION: Donor site without skin substitute Donor site after application of skin substitute Split thickness skin graft application showing remaining ulnar area of native skin. Volar aspect split thickness skin graft. Split thickness skin graft dorsal aspect. Split thickness skin graft status post 6 weeks.

(no table selected)

TITLE: ENHANCING HAND FUNCTION RECOVERY AFTER EXTENDED RADIAL FOREARM FREE FLAP: A CASE SERIES AND REVIEW OF AN INNOVATIVE THERAPY PROTOCOL

CONTROL ID: 4104394
TITLE: HAND THERAPY LEVEL II FIELDWORK EDUCATORS' PERCEPTIONS OF OCCUPATIONAL THERAPY STUDENTS' NEED FOR ADDITIONAL EDUCATION
AUTHORS (FIRST NAME INITIAL, LAST NAME): S. Donley[1]
INSTITUTIONS (ALL):
1. Occupational Therapy, Thomas Jefferson University, Sewell, NJ, United States.
ABSTRACT BODY:
Purpose: This study was designed to gather the perceptions of hand therapy fieldwork educators in occupational therapy's perceptions regarding their level II fieldwork students' need for additional hand therapy education before beginning their fieldwork experience. The results are intended to design curriculum and learning modules focused on increasing foundational hand therapy knowledge and skills to better prepare incoming level II fieldwork students and improve student success.
Methods: This study consisted of non-experimental, descriptive research utilizing a survey method. The survey, which was distributed via email by the American Society of Hand Therapists, contained questions to gather qualitative and quantitative data to describe the fieldwork educators' perceptions of student preparedness, data regarding student interviews and placements, additional education sought by fieldwork students before beginning their placement, and fieldwork educators' opinions on which materials should be included in curricula and education modules related to hand therapy.
Results: Figure 1 demonstrates that most respondents felt that students' didactic and experiential education did not prepare them with adequate hand therapy-specific knowledge of upper extremity evaluation and providing appropriate intervention and modification as needed. However, respondents did feel that students were adequately prepared to incorporate client-centered, occupation-based activities into their treatment sessions When asked about students' understanding of how evaluation results affect the performance of activities of daily living, responses were comparable. As shown in Figure 2, 96% respondents reported that students would probably benefit or definitely benefit from a specialized course or education module to prepare them for their level II placement in hand therapy. Figure 3 demonstrates the basic didactic material those respondents indicated a specialized hand therapy course or education module should include. Qualitative data includes assessment, special testing, differential diagnosis and grading of exercise based on patient response to intervention. Figure 4 demonstrates the basic clinical skills that respondents would include. Qualitative themes include manual therapy, provocative testing, and clinical reasoning. Fifty-seven percent of respondents feel that a specialized hand therapy course or education module should include advanced practice information and skills. Qualitative responses agreed with including all advanced information listed. Figure 5 details respondent selections.
Conclusion: Occupational therapy students entering a level II fieldwork in hand therapy must be prepared for the rigor of the setting to be successful. FWEs feel that their students' didactic and experiential education has not adequately prepared them with evaluation and intervention knowledge and skills. This study supports both hypotheses; that FWEs feel their students are underprepared for level II fieldwork in this setting and would benefit from a specialized education course or module relevant to hand therapy. Responses indicate that both basic and advanced information would be beneficial, with themes focused on assessment, clinical reasoning, manual therapies, differential diagnosis, special testing, and grading of exercises based on patient response to intervention. The data gathered in this study will lead to developing specialized hand therapy education materials to prepare occupational therapy level II fieldwork students for this advanced practice setting.
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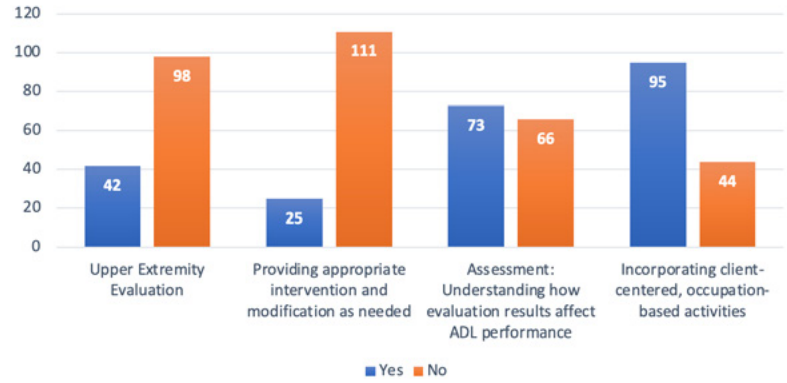
Methods: This study consisted of non-experimental, descriptive research utilizing a survey method. The survey, which was distributed via email by the American Society of Hand Therapists, contained questions to gather qualitative and quantitative data to describe the fieldwork educators' perceptions of student preparedness, data regarding student interviews and placements, additional education sought by fieldwork students before beginning their placement, and fieldwork educators' opinions on which materials should be included in curricula and education modules related to

hand therapy.

Results: Figure 1 demonstrates that most respondents felt that students' didactic and experiential education did not prepare them with adequate hand therapy-specific knowledge of upper extremity evaluation and providing appropriate intervention and modification as needed. However, respondents did feel that students were adequately prepared to incorporate client-centered, occupation-based activities into their treatment sessions When asked about students' understanding of how evaluation results affect the performance of activities of daily living, responses were comparable. As shown in Figure 2, 96% respondents reported that students would probably benefit or definitely benefit from a specialized course or education module to prepare them for their level II placement in hand therapy. Figure 3 demonstrates the basic didactic material those respondents indicated a specialized hand therapy course or education module should include. Qualitative data includes assessment, special testing, differential diagnosis and grading of exercise based on patient response to intervention. Figure 4 demonstrates the basic clinical skills that respondents would include. Qualitative themes include manual therapy, provocative testing, and clinical reasoning. Fifty-seven percent of respondents feel that a specialized hand therapy course or education module should include advanced practice information and skills. Qualitative responses agreed with including all advanced information listed. Figure 5 details respondent selections.

Conclusion: Occupational therapy students entering a level II fieldwork in hand therapy must be prepared for the rigor of the setting to be successful. FWEs feel that their students' didactic and experiential education has not adequately prepared them with evaluation and intervention knowledge and skills. This study supports both hypotheses; that FWEs feel their students are underprepared for level II fieldwork in this setting and would benefit from a specialized education course or module relevant to hand therapy. Responses indicate that both basic and advanced information would be beneficial, with themes focused on assessment, clinical reasoning, manual therapies, differential diagnosis, special testing, and grading of exercises based on patient response to intervention. The data gathered in this study will lead to developing specialized hand therapy education materials to prepare occupational therapy level II fieldwork students for this advanced practice setting.

Figure 1
Are Students Prepared?



Note. ADL= activities of daily living

Figure 2
Would Students Benefit?

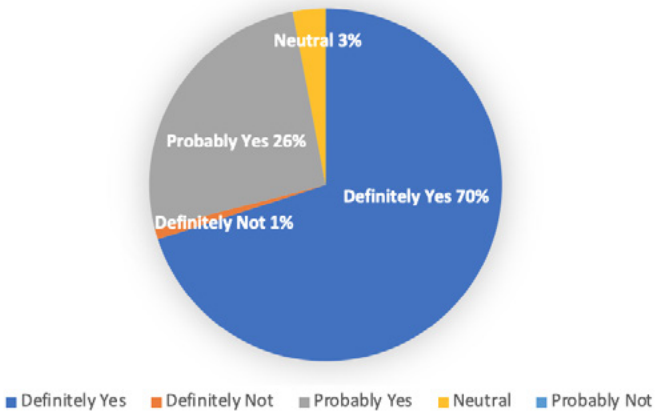


Figure 3
Basic Didactic Material

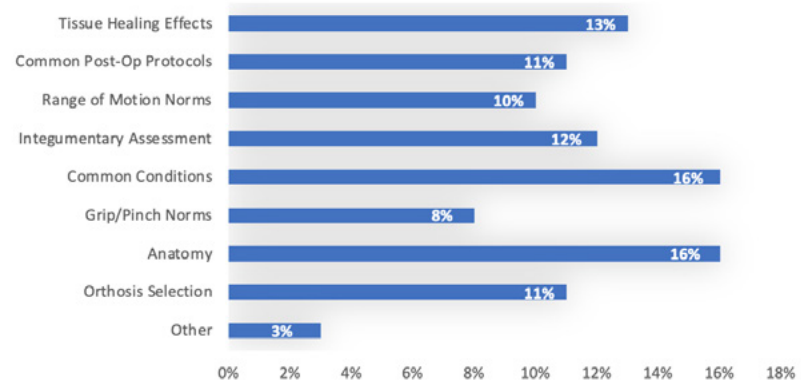
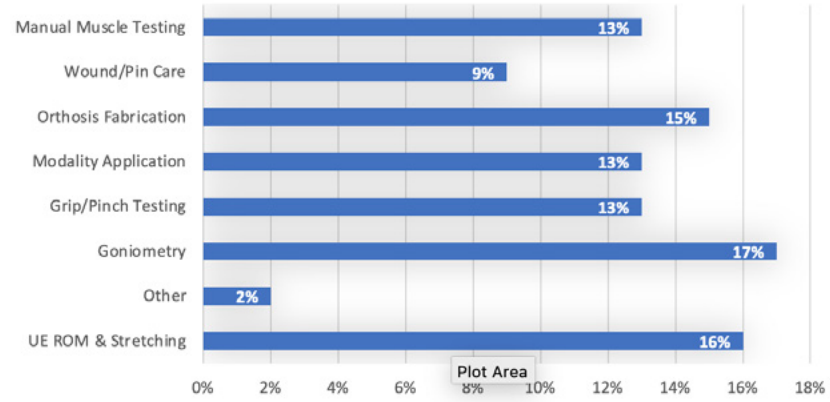


Figure 4
Basic Clinical Skills



Note. UE = upper extremity; ROM = range of motion

Figure 5
Advanced Information and Skills

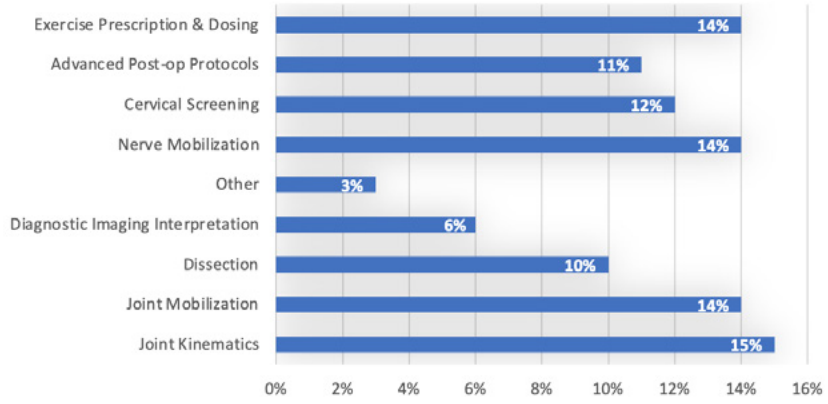


IMAGE CAPTION: *Note.* ADL= activities of daily living
(no table selected)
TITLE: HAND THERAPY LEVEL II FIELDWORK EDUCATORS' PERCEPTIONS OF OCCUPATIONAL THERAPY STUDENTS' NEED FOR ADDITIONAL EDUCATION

CONTROL ID: 4111090
TITLE: THE EFFECTIVENESS OF MINDFULNESS ON REDUCING PAIN AND STRESS IN PATIENTS EXPERIENCING AN UPPER EXTREMITY AILMENT
AUTHORS (FIRST NAME INITIAL, LAST NAME): B. Hall[1]
INSTITUTIONS (ALL):
1. Occupational Therapy , University of Michigan, Macomb, MI, United States.
ABSTRACT BODY:
Purpose: Hand therapy often takes on a biomechanical approach to reducing pain through the use of modalities, soft-tissue massage, and
adaptive equipment. The psychological aspect of pain is often neglected thus a patient's perception of pain can be a triggering factor in the healing process. Mindfulness is a type of meditation that focuses on bringing awareness to the present moment by taking in all emotions and sensations without jugding or critizing one self . Having a better understanding of and incorporation of the mind-body component in hand therapy can help patients better cope with chronic pain and decrease anxieties associated with the injury.
Methods: To break down my format into a PICO question: The patient group are individuals who are experiencing an upper extremity pain and stress. The intervention is mindfulness. I did not include a comparison group. The outcome is pain/stress reduction.

The Inclusion Certieria I utilized included the following: Individuals experiencing pain; Individuals practicing mindfulness-based interventions; Adults ages 18≤; articles that were peer-reviewed and publisjed within the last 15years

The certieria that I excluded: Individuals not experiencing pain; interventions not related to mindfulness-based practice

Data bases utilized included ASHT, PubMed, University of Michigan Library, Google scholar
Search Terms used for Population included Upper extremity pain, injury; Intervention: Mindfulness, Meditation; Outcome: Pain and stress reduction
Results: A total of 13 studies were located and reviewed. 3 articles were selected from the review process. The best evidence found on this topic included two randomized controlled trials (RCTs) and one systematic review. These articles looked at the effectiveness of mindfulness in reducing pain/stress. Results provide evidence that mindfulness-based interventions can decrease pain and stress in patients experiencing an upper extremity ailment.
The first article included was Mindful Body Scans and Sonographic Biofeedback as Preparatory Activities to Address Patient Psychological States in Hand Therapy: A Pilot Study. This article was a randomized cross over designed that investigated how mind-body interventions used as a preparatory activity affected the patient’s pain, stress, and anxiety. It aimed to determine potential benefits of including a mindful body scan or sonographic biofeedback within hand therapy and to explore the positive effects of pairing hand therapy with preparatory mind-body interventions. This study was selected because it was a recent study that measured pain, anxiety, and stress from 21 hand therapy patients at different periods of a treatement session to assess the impact of the mindfulness techniques.

The second article included: Mindfulness-based interventions for chronic pain: Evidence and applications. This systematic review analyzed the effectiveness of mindfulness-based interventions (MBIs) in reducing chronic pain. This article was selected because it was a recent systematic review that supported the use of mindfulness-based interventions in reducing chronic pain. This was the highest level of evidence, and it provided information on the use of mindfulness interventions in the treatment of a variety of chronic pain conditions.

The third article included was Does a Brief Mindfulness Exercise Improve Outcomes In Upper Extremity Patients? A Randomized Controlled Trial. This randomized control trial assess effects of mindfulness in patients with upper-extremity conditions. This article was selected because it was a recent RTC that found Mindfulness to be positively associated with less pain (though below the minimal clinically important difference), increased mood, and better function.

Conclusion: Findings related to mindfulness interventions appeared to have promising results in the treatment of pain and stress among patients who are experiencing and upper extremity ailment. Future research should assess how mindfulness relates to improving functional outcomes and its effects over long term practice. Future studies are warranted to enhance understanding of how mindfulness therapies improve pain and mental health in different settings and among patients with various upper extremity diagnosis. Additional evidence is also needed to support mindfulness interventions to increase availability for patients.
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The Effectiveness of Mindfulness on Reducing Pain and Stress in Patients experiencing an Upper Extremity Ailment

Brittney Hall OTR/L

Background: Hand therapy often takes on a biomechanical approach to reducing pain through the use of modalities, soft-tissue massage, and adaptive equipment. The psychological aspect of pain is often neglected thus one's perception of pain can be a triggering factor in the healing process. Mindfulness is a type of meditation that focuses on bringing awareness to the present moment by taking in all emotions and sensations without judgment or self-criticism. Having a better understanding of and incorporation of the mind-body component in hand therapy can help patients better cope with chronic pain and decrease anxieties associated with the injury.

1 Ask: Research Question

Are mindfulness techniques effective in reducing pain and stress among individuals who are experiencing an upper extremity ailment?

2a Acquire: Search Terms

Key Terms: Mindfulness, upper extremity, pain reduction, chronic pain, hand therapy

Databases: Google Scholar, PubMed, ScienceDirect, U of M Library, ASHT

Patient/Client Group: Individuals who are experiencing upper extremity pain and stress
Intervention: Mindfulness
Comparison: N/A
Outcome(s): Pain and/or stress reduction

2b Acquire: Selected Articles

Roll et al. (2020): This randomized cross over designed study examined the effectiveness of mindfulness as an intervention for patients to reduce pain and promote functional recovery

Majeed et al. (2018): This systematic review analyzed the effectiveness of mindfulness-based interventions (MBIs) in reducing chronic pain.

Westenberg et al. (2018): This randomized control trial (RTC) assess effects of mindfulness in patients with upper-extremity conditions.

3a Appraise: Study Quality

Roll et al. (2020): Level II. (n=20) *Strengths:* Reported assessment had an acceptable internal consistency. Outcome measures used have been well-validated in the sample of patients with upper extremity impairment. No significant between-group differences pending order of intervention.
Weaknesses: No clinically meaningful changes in anxiety or pain. Hand therapists used own discretion in choosing standard care treatments.

Majeed et al. (2018): Level I. (n=1,130)
Strengths: Large collective sample size. Limited to meta-analyses and RCTs.
Weaknesses: No standardized protocol across all studies.

Westenberg et al. (2018): Level II. (n=125)
Strengths: Valid and reliable measures used. 100% feasibility rate was noted.
Weaknesses: Limited generalizability of sample. Floor effect secondary to including patients regardless of pain/stress level.

3b Appraise: Study Results

Roll et al. (2020): Mind-body interventions are effective preparatory activities in improving psychological states. Statistically significant effects for both anxiety and cortisol levels indicate that these traits decreased across sessions regardless of the intervention being provided ($p < 0.001$).

Majeed et al. (2018): Limited evidence showed support of MBIs in reducing chronic low back, chronic migraine pain, and chronic musculoskeletal pain. Of the 9 RCTs reviewed, and the 2 meta-analyses reviewed, 7 of them had significant results.

Westenberg et al. (2018): The mindfulness-based video exercise demonstrated improved pain intensity and anxiety. Minimal clinically important difference (MICD) was established for pain however not for other outcomes.

4 Apply: Conclusions for Practice

Findings related to mindfulness interventions appeared to have promising results in the treatment of pain and stress among patients who are experiencing and upper extremity ailment. Future research should assess how mindfulness relates to improving functional outcomes and its effects over long term practice. Future studies are warranted to enhance understanding of how mindfulness therapies improve pain and mental health in different settings and among patients with various upper extremity diagnosis. Additional evidence is also needed to support mindfulness interventions to increase availability for patients.

References:

Majeed, M., Ali, A., & Sudak, M. (2018). Mindfulness-based interventions for chronic pain: Evidence and applications. Asian Journal of Psychiatry, 32. 79-83. https://doi.org/10.1016/j.ajp.2017.11.02

Roll, S. C., Hardison, M. E., Vigen, C., & Black, D. S. (2020). Mindful body scans and sonographic biofeedback as preparatory activities to address patient psychological states in hand therapy: A pilot study. Hand Therapy, 25(3), 98–106. Pubmed. https://doi.org/10.1177/1758998320930752

Westenberg, R. F., Zale, E. L., Heinhuis, T. J., Özkan, S., Nazzal, A., Lee, S.-G., Chen, N. C., & Vranceanu, A.-M. (2018). Does a Brief Mindfulness Exercise Improve Outcomes in Upper Extremity Patients? A Randomized Controlled Trial. *Clinical Orthopaedics and Related Research, 476*(4), 790–798. https://doi.org/10.1007/s11999.0000000000000086

MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

Limited evidence supports the use of mindfulness in decreasing pain and stress among individuals who are experiencing an upper extremity ailment.

Here is my CAT Poster

CRITICALLY APPRAISED TOPIC WORKSHEET

TITLE

THE EFFECTIVENESS OF MINDFULNESS ON REDUCING PAIN AND STRESS IN PATIENTS EXPERIENCING AN UPPER EXTREMITY AILMENT

AUTHOR

Prepared by	Brittney Hall	**Date**	02/13/2024
Email address	hallba16@comcast.net		

CLINICAL SCENARIO

na

FOCUSSED CLINICAL QUESTION

Are mindfulness techniques effective in reducing pain and stress among individuals who are experiencing an upper extremity ailment?

SUMMARY OF SEARCH
[Best evidence appraised and key findings]

The best evidence found on this topic included two randomized controlled trials (RCTs) and one systematic review. These articles looked at the effectiveness of mindfulness in reducing pain/stress. Results provide evidence that mindfulness-based interventions can decrease pain and stress in patients experiencing an upper extremity ailment.

CLINICAL BOTTOM LINE

Evidence is supportive in the use of mindfulness in decreasing pain/stress among patients with an upper extremity ailment.

SEARCH STRATEGY

Terms used to guide the search strategy
• **P**atient/Client Group: Adults experiencing chronic Upper extremity pain • **I**ntervention (or Assessment): Mindfulness Interventions • **C**omparison: NA • **O**utcome(s): Decrease in pain/stress

Here is a rough outline of my project. I used this formating to organize information from the articles and synthesize the data.

IMAGE CAPTION: Here is my CAT Poster Here is a rough outline of my project. I used this formating to organize information from the articles and synthesize the data.
(no table selected)
TITLE: THE EFFECTIVENESS OF MINDFULNESS ON REDUCING PAIN AND STRESS IN PATIENTS EXPERIENCING AN UPPER EXTREMITY AILMENT

CONTROL ID: 4111525
TITLE: THE USE OF FOREARM BASED ORTHOSES TO LIMIT AND / OR PREVENT FOREARM ROTATION
AUTHORS (FIRST NAME INITIAL, LAST NAME): D. A. Schwartz[1]
INSTITUTIONS (ALL):
1. Physcial Rehabilitation, Orfit Industries America, Leonia, NJ, United States.
ABSTRACT BODY:
Purpose: a. After forearm and/ or elbow and/ or wrist trauma it is often necessary to prevent and/ or limit forearm rotation. Clinicians commonly fabricate either the Sugar Tong orthosis or the Muenster orthosis for this purpose. This poster examines the current evidence for forearm- based orthoses that limit and / or prevent forearm rotation and reveals some overlooked details in the literature.

b. What is the current evidence that supports the use of the Sugar tong orthosis and/ or the Muenster orthosis for prevention and/ or limitation of forearm rotation following trauma and/ or surgery?
Methods: c.A literature search was conducted using the following databases and search terms:

Databases Searched
Medline
CINAHL (EBSCO)
Pubmed
Google Scholar

Search Terms
Splints/ orthoses to limit forearm rotation
Muenster orthosis
Sugar tong orthosis
Forearm immobilization

Limits Used
Full text articles
Studies in English
Years 2007-2024

Slaughter et al (2010) compared the effectiveness of the Muenster orthosis, Sugar tong orthosis, anti-pronation orthosis, and a standard wrist orthosis on prevention of forearm rotation in 5 volunteers who had not experienced any trauma (Slaughter et al 2010).
Rahman et al (2018) examined the degree of forearm rotation allowed with a Sugar Tong cast, a short arm cast, a Muenster cast, and a long arm cast. All of these immobilization devices were fabricated with fiberglass and this study was performed on 7 cadavers.
Trocchia et al (Trocchia et al 2012) defined the arc of motion from pronation to supination in 15 volunteers wearing different immobilization orthoses. Average arc of motion from pronation to supination for unrestricted elbow - 189°, for a long arm cast -11°, a Muenster cast -35°, a “removable splint set to 90° elbow flexion” -124° and a splint set to the extension flexion arc of elbow motion allowed in a Muenster cast- 139°.
Kim and Kim (Kim and Kim, 2012) conducted a study to compare the degree of active pronation and supination allowed by a short arm orthosis, a short arm cast, a sugar tong orthosis, a long arm orthosis, and a long arm cast fabricated on forty healthy volunteers.
Lawton et al (Lawton et al 2007) looked at Scaphoid fractures immobilized in long arm thumb spica casts versus Muenster style thumb spica casts. The Muenster cast allowed for elbow flexion and extension while still limiting forearm rotation. This study was conducted on ten healthy volunteers, and it appears that both cast designs were fabricated using Delta cast material.

McCarron et al (McCarron et al, 2023) found that current clinical practice following repair of the triangular fibrocartilage complex included on average 6 weeks of immobilization. The most commonly fabricated orthosis was the Sugar Tong orthosis followed by the Muenster orthosis, both of which include the wrist and forearm.
Results: e. The above cited studies attempt to demonstrate the effectiveness of different immobilization designs on prevention of forearm rotation. The studies include a variety of different types of immobilization designs including long and short arm casts, Sugar Tong orthosis, Muenster orthosis, long arm orthosis, and short arm orthosis..
f.The immobilization materials used in the above-mentioned designs included fiberglass and plaster, but not thermoplastic materials. In addition, the studies have all been conducted with healthy volunteers or on cadavers, and some indicated using mock restiction set -ups to imitate an immobilization orthosis.
Conclusion: g. Limitations of the studies include the healthy population of volunteers that were included, the use of plaster and or fiberglass as the main material and the idea that the volunteers used maximum force to test the strength of the immobilization.
h. It appears that the most restrictive cast (or orthosis) is one in which the elbow and wrist are both included as in a long-arm cast. However, the elbow is at risk of becoming stiff if the immobilization period is prolonged. This type of cast can be uncomfortable for the patient. It should be noted that a long arm orthosis has the advantage of being removable and can be fabricated on the anterior or posterior surfaces of the forearm or both.
i. Clinicians should be aware of the fact that neither the Muenster orthosis nor the Sugar Tong orthosis completely prevent forearm rotation. The elbow would need to be included for the full prevention of forearm rotation. It is recommended that clinicians be familiar with both options and practice orthotic fabrication of each type to become comfortable and efficient.
Purpose: a. After forearm and/ or elbow and/ or wrist trauma it is often necessary to prevent and/ or limit forearm rotation. Clinicians commonly fabricate either the Sugar Tong orthosis or the Muenster orthosis for this purpose. This poster examines the current evidence for forearm- based orthoses that limit and / or prevent forearm rotation and reveals some overlooked details in the literature.

b. What is the current evidence that supports the use of the Sugar tong orthosis and/ or the Muenster orthosis for prevention and/ or limitation of forearm rotation following trauma and/ or surgery?
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Conclusion: g. Limitations of the studies include the healthy population of volunteers that were included, the use of plaster and or fiberglass as the main material and the idea that the volunteers used maximum force to test the strength of the immobilization.
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The Muenster orthosis

The Sugar Tong orthosis

IMAGE CAPTION: The Muenster orthosis The Sugar Tong orthosis
(no table selected)
TITLE: THE USE OF FOREARM BASED ORTHOSES TO LIMIT AND / OR PREVENT FOREARM ROTATION

CONTROL ID: 4112498

TITLE: OUTCOMES OF GLENOHUMERAL DYSPLASIA FOLLOWING BRACHIAL PLEXUS BIRTH INJURY USING THE SUP-ER ORTHOSIS

AUTHORS (FIRST NAME INITIAL, LAST NAME): A. Feretti[2], N. Khabyeh-Hasbani[1], V. Ferrante[3], M. Joshi[3], M. Horowitz[3], S. Koehler[1]

INSTITUTIONS (ALL):

1. Orthopaedic Surgery, Montefiore Medical Center, Bronx, NY, United States.
2. Rehabilitation and Movement Sciences, University of Vermont, Burlington, VT, United States.
3. Hand Therapy, Motion PT Group, Bronx, NY, United States.

ABSTRACT BODY:

Purpose: This study investigates the efficacy of the Supination-External Rotation (Sup-ER) orthosis in addressing the progression of glenohumeral dysplasia (GHD) in patients with brachial plexus birth injuries (BPBIs). Although previous research studies have examined the success of the Sup-ER orthosis based on Active Movement Scale (AMS) scores, it was speculated whether the Sup-ER orthosis would have the same success as published studies if the outcome variables were increased to also include serial, objective ultrasound measurements.

Methods: The Sup-ER orthosis was fabricated for 20 infants diagnosed with GHD subsequent to BPBIs. AMS scores of shoulder abduction (SA), forward flexion (FF), Sup and ER, as well as alpha angle measurements from ultrasound findings were collected prior to and at each follow-up visit following the fabrication of the Sup-ER orthosis. The success of the Sup-ER orthosis in correcting GHD was confirmed through ultrasound findings and improving AMS scores, leading to the discharge of patients from care. Failure to rectify GHD necessitated a transition to operative management for the patient. Analysis of the outcome measurements were conducted using a two-tailed paired sample t-test. The level of significance was set at $p < 0.05$.

Results: Fourteen out of the twenty patients (70%) fabricated with the Sup-ER orthosis successfully demonstrated resolution of GHD on ultrasound and improvement of AMS scores. The average time of fabrication of the Sup-ER orthosis to the time of discharge from the orthosis was 17.4 (SD 8.3) weeks. In these patients, average SA was 6.6 (SD 0.8) ($p < 0.05$), SF was 6.6 (SD 0.8) ($p < 0.05$), ER was 6.7 (SD 0.6) ($p < 0.05$), and Sup was 6.8 (SD 0.8) ($p = 0.078$) following discontinuation of the orthosis. Additionally, in these patients the average alpha angle following treatment with the Sup-ER orthosis was reduced to 14.43 (SD 4.86) ($p < 0.05$). Of the remaining patients (30%), the implementation of the Sup-ER orthosis failed to resolve GHD as evidenced by either ultrasound findings or AMS scores. These patients had to undergo further microsurgical intervention.

Conclusion: In contrast to previous studies demonstrating the success of the Sup-ER orthosis, the results in this study indicate that there is a failure of the intervention warranting microsurgical intervention. Nevertheless, the Sup-ER orthosis has been shown effective in resolving glenohumeral dysplasia, as evidenced by improving AMS scores and serial, objective ultrasound measurements, and should be advocated for in the routine care for brachial plexus birth injury patients.

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Results: Fourteen out of the twenty patients (70%) fabricated with the Sup-ER orthosis successfully demonstrated resolution of GHD on ultrasound and improvement of AMS scores. The average time of fabrication of the Sup-ER orthosis to the time of discharge from the orthosis was 17.4 (SD 8.3) weeks. In these patients, average SA was 6.6 (SD 0.8) ($p < 0.05$), SF was 6.6 (SD 0.8) ($p < 0.05$), ER was 6.7 (SD 0.6) ($p < 0.05$), and Sup was 6.8 (SD 0.8) ($p =$

0.078) following discontinuation of the orthosis. Additionally, in these patients the average alpha angle following treatment with the Sup-ER orthosis was reduced to 14.43 (SD 4.86) ($p < 0.05$). Of the remaining patients (30%), the implementation of the Sup-ER orthosis failed to resolve GHD as evidenced by either ultrasound findings or AMS scores. These patients had to undergo further microsurgical intervention.

Conclusion: In contrast to previous studies demonstrating the success of the Sup-ER orthosis, the results in this study indicate that there is a failure of the intervention warranting microsurgical intervention. Nevertheless, the Sup-ER orthosis has been shown effective in resolving glenohumeral dysplasia, as evidenced by improving AMS scores and serial, objective ultrasound measurements, and should be advocated for in the routine care for brachial plexus birth injury patients.

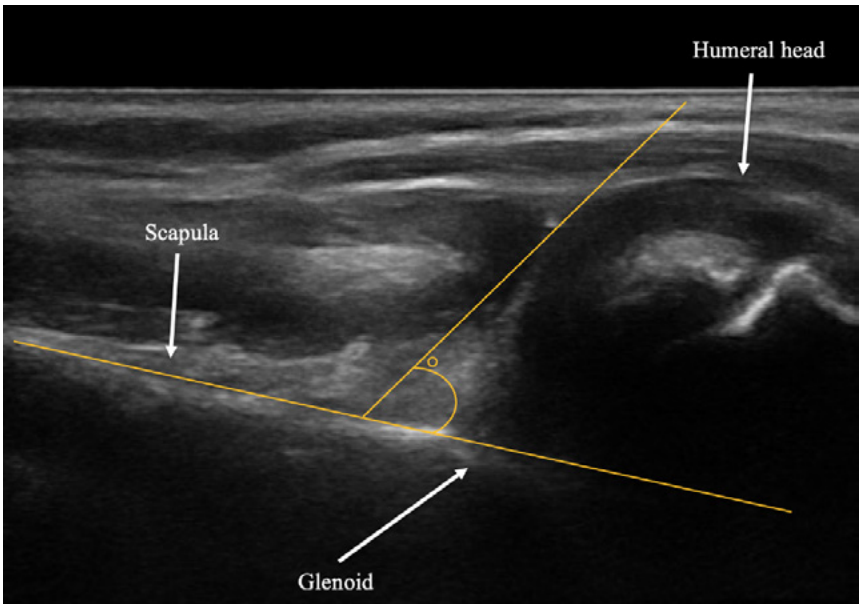
Humeral head
Scapula
Glenoid

IMAGE CAPTION:
(no table selected)
TITLE: OUTCOMES OF GLENOHUMERAL DYSPLASIA FOLLOWING BRACHIAL PLEXUS BIRTH INJURY USING THE SUP-ER ORTHOSIS

CONTROL ID: 4112511

TITLE: REHABILITATION PROTOCOL FOLLOWING ADOLESCENT SHOULDER REANIMATION

AUTHORS (FIRST NAME INITIAL, LAST NAME): A. Feretti[1], N. Khabyeh-Hasbani[2], M. Joshi[1], V. Ferrante[1], E. Meisel[4], J. Kurtzman[3], S. Koehler[2]

INSTITUTIONS (ALL):

1. Hand Therapy, MOTION Sports Medicine, Essex, VT, United States.
2. Orthopaedic Surgery, Montefiore Medical Center, Bronx, NY, United States.
3. Wake Forest School of Medicine, Winston-Salelm, NC, United States.
4. Orthopaedic Surgery, Children's Hospital of Los Angeles, Los Angeles, CA, United States.

ABSTRACT BODY:

Purpose: This study proposes a postoperative rehabilitation protocol following adolescent shoulder reanimation procedures in patients who did not receive timely or effective care for brachial plexus birth injuries. Preliminary findings from a series of eight patients who underwent postoperative implementation of this rehabilitation protocol is included.

Methods: Methods:

Through collaborative communication between the operating surgeon and occupational therapists, a four-phase rehabilitation protocol and a modified orthosis, based on the external rotation abduction thermoplastic shoulder orthosis (ERATSO) described by Buchanan et al., were developed.

The focus of Phase 1 (0-6 weeks) of the rehabilitation protocol is immobilization using the custom fabricated orthosis to support the healing structures and help the patient and family manage functional activities in the position of immobilization.

In Phase 2 (7-12 weeks), protected active and passive movement is initiated, with an emphasis on activating transferred muscles and cortical remapping.

In Phase 3 (12-18 weeks), full active movement and initiation of functional activities is conducted.

In Phase 4 (19 weeks onward), repetition of motion against gravity and reinforcing the recruitment of donor muscles for the new, established movement, is encouraged.

Demographic data, rehabilitation summary reports, and outcome measurements were extracted from those who underwent implementation of this protocol at the time of data collection. Data was analyzed descriptively.

Results: Eight patients (average 13.8 years-old) with an average follow-up time of 35 weeks were included in the rehabilitation protocol. Prior to undergoing reanimation procedures, patients had 0° external rotation (ER) from neutral and in maximum abduction, 0-20° of abduction and 0-20° of forward flexion (FF) that were mediated through scapulothoracic motion. At latest therapy appointment patients achieved an average of 71° (30-90°) ER from neutral and an average of 82° (65-90°) ER in maximum abduction, an average of 115° (90-180°) of abduction, and an average of 91° (20-170°) FF.

Conclusion:

When searching for postoperative therapeutic management options following shoulder reanimation surgeries for patients in this population, there were severe shortcomings and limitations in the literature. Our multidisciplinary team consisting of hand therapists and an orthopaedic surgeon specializing in correcting brachial plexus injuries, considered the available evidence and developed the four-phase rehabilitation protocol based on the stages of healing and feasibility for patient implementation. This study provides a comprehensive, four-phase rehabilitation protocol with a step-by-step guide of constructing a two-piece orthosis tailored for adolescent patients that underwent shoulder reanimation procedures following undertreated/untreated brachial plexus birth injury.

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Phase 1
(0-6 weeks)
Phase 2
(7-12 weeks)
Phase 3
(12-18 weeks)
Phase 4
(19+ weeks)
Immobilization
• Facilitate independence in ADLs
Protected Movement
• Exercises focus on activating transferred muscles
• Passive ROM, assisted active ROM
Full Active Movement
• Initiation of functional activities
• Orthosis adjusted to 45-60° abduction and 60° external rotation
Return to Full Function
• Orthosis discontinued
• Exercises to reinforce recruitment of donor muscle for movement


A
B
C
D
E
F
G

Table 1. Results from eight patients who underwent our surgical technique.

	Pre-operative	**Post-operative**
External Rotation		
From Neutral	0°	71° (30-90°)
In Max Abduction	0°	82° (65-90°)
Abduction		
	0-20°	115° (90-180°)
Forward Flexion		
	0-20°	91° (20-170°)

IMAGE CAPTION:
(no table selected)
TITLE: REHABILITATION PROTOCOL FOLLOWING ADOLESCENT SHOULDER REANIMATION

CONTROL ID: 4112932

TITLE: CONTRALATERAL TRAINING IN DISTAL RADIUS FRACTURES: CRITICAL ANALYSIS OF CLINICAL IMPLICATIONS

AUTHORS (FIRST NAME INITIAL, LAST NAME): R. Altahif[1, 3], K. Milbert[2]

INSTITUTIONS (ALL):

1. Occupational Therapy , Baylor University, Waco, TX, United States.
2. N/A, St. Paul, MN, United States.
3. Active Therapy Alliance, Waco, TX, United States.

ABSTRACT BODY:

Purpose: Distal radius fractures (DRF) are the most common type of fracture (Bergh et al., 2020) and can result in decreased grip strength (Chung et al., 2019), leading to deficits in activity of daily living (ADL) participation (Meskers et al., 2019; McGrath et al., 2020). Contralateral training (CLT), or the training of the unaffected limb, has been shown to increase strength and decrease atrophy in an immobilized extremity (Andrushko et al., 2023). Cross education (CE), which was considered a form of CLT for this study, seeks to impact the central nervous system by leveraging the neural pathways and promote symmetry and bilateral improvements despite only training the affected extremity. Studies have shown that CLT can be effective in the distal radius population (Magnus et al., 2013), however the state of DRF rehabilitation is evolving to include more accelerated approaches that emphasize early mobility, therefore it is warranted that this evidence is revisited. The purpose of this critically appraised topic was to explore the literature and clinical impact of CLT on patients who have had a DRF. CAT question: What is the effectiveness of CLT on wrist motion and grip strength in patients who have a DRF?

Methods: Articles published within the last 15 years were searched in CINAHL, PubMed, and Google Scholar. Search terms: (contralateral training OR cross education OR cross training) AND (distal radius fracture OR distal radius fracture with open reduction internal fixation OR post-operative distal radius fracture OR drf OR drf with orif) AND (grip strength OR hand function OR upper extremity function OR strength OR mmt). Articles were included in the study if they explored CLT or CE for a patient with a DRF, and measured strength and/or a functional outcome pre- and post-intervention. 22 articles were reviewed and 3 met the inclusion criteria. All three studies were level 2b, 1 double blind randomized control trial (RCT) and 2 single blinded RCTs. Study design, participant characteristics, intervention details, outcomes measured, and key findings were reviewed.

Results: Magnus et al. (2013) found that CLT using a strength training approach, yielded increased strength (17.3 vs. 11.8 kg) and wrist AROM (100.5 vs. 80.2) of the impacted limb at 12 weeks post-fracture, but the groups showed no difference at 26 weeks. Korbus and Schott (2019) found that CE, using either a mirror therapy (MT) or mental practice (MP) approach, yielded improved scores on subjective function, AROM, and grip strength over the control group over a six week training period. Bayon-Calatayud et al. (2016) found no difference in pain, function, or AROM between the MT and control group, however they followed patients for a total of 3 weeks and had samples that included both conservative and post-operative management.

Conclusion: This CAT on CLT for DRF provides valuable implications for hand therapists and patients. CLT can improve patient outcomes for strength, AROM, and subjective measures while the affected limb is immobilized. A variety of approaches including strength training, mirror therapy, and mental practice show the potential for benefit. The benefit for CLT appears to peak within the first 12 weeks following distal radius fracture, and when the affected limb is immobilized. Hand therapists should consider integrating CLT into rehabilitation plans during periods of immobilization, however may not see a benefit when the affected limb is released to perform AROM. Limitations include the small sample sizes, limited generalization, and two studies described an immobilization period of ~6 weeks which limits generalization to modern post-operative protocols. Further research is warranted to explore the impact of CLT on distal radius fractures with open reduction internal fixation, which generally allows for earlier mobilization.

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TABLE:

Note: The PDF table below is only an approximation of the HTML content and may not match formatting exactly.

Results		
Author/Year	Level of Evidence/ Study Design/ Subjects	Clinical Findings
Magnus et al. (2013)	Level 2b/ Prospective double-blind RCT/ N=39 females with an average age of 63 years	Magnus et al. (2013) found that CLT using a strength training approach, yielded increased strength (~17.3 vs. ~11.8 kg) and wrist AROM (100.5 ± vs. 80.2) of the impacted limb at 12 weeks post-fracture, but the groups showed no difference at 26 weeks.

Korbus and Schott (2019)	Level 2b/ Prospective single-blind RCT/N=29 females with an age range of 60-87 years (74 avg.)	Korbus and Schott (2019) found that CE, using either a mirror therapy or mental practice approach, yielded improved scores on subjective function, ROM, and grip strength over the control group over a six-week training period.
Bayon-Calatayud et al. (2016)	Level 2b/ Prospective single-blind RCT/ N=22 (7 male, 15 female) subjects with an average age of 58 years	Bayon-Calatayud et al. (2016) found no difference in pain, function, or ROM between the MT and control group, however they followed patients for a total of 3 weeks and had sample that included both conservative and post-operative management.

TABLE FOOTER:
TABLE TITLE: Results
TITLE: CONTRALATERAL TRAINING IN DISTAL RADIUS FRACTURES: CRITICAL ANALYSIS OF CLINICAL IMPLICATIONS

CONTROL ID: 4114360

TITLE:

THUMB PAIN EXPERIENCED IN HAND THERAPISTS

AUTHORS (FIRST NAME INITIAL, LAST NAME): J. Lemon[1], J. Beasley[3], D. Lunsford[2], C. Zmyslo[1]

INSTITUTIONS (ALL):

1. South Bend Orthopaedics, Granger, IN, United States.
2. Gannon University, Ruskin, FL, United States.
3. Grand Valley State University, Grand Rapids, MI, United States.

ABSTRACT BODY:

Purpose: Certified hand therapists (CHTs) utilize their thumbs daily to perform interventions with their patients. As a result, repetitive and/or forceful movements of the thumb may cause cumulative trauma disorders and potentially increase the risk of developing thumb arthritis. Thumb pain is commonly reported in certified hand therapists, but there is limited research available to support this. The purpose of this study was to examine thumb pain experienced in CHTs practicing in the United States and Canada along with potential risks associated with it.

Methods: A cross-sectional survey of 31 questions was created utilizing information from two studies and the American Society of Hand Therapists' (ASHT) core demographic questions. ASHT emailed the Qualtrics survey to its members on January 9th, 2024. Descriptive statistics and qualitative analysis were used to interpret the results.

Results: A total of 249 certified hand therapists responded to the survey yielding a response rate of 9.6% of ASHT members. 197 certified hand therapists in total were included in the study (92% occupational therapists, 8% physical therapists). Daily occurrence of thumb pain was experienced in over one third of certified hand therapists in this study. The majority of thumb pain was located in bilateral CMC joints. Manual massage was the most commonly reported work activity that contributed to participants' thumb pain. The most common effective interventions to treat their own thumb pain were joint protection, orthoses, and taping. Nearly half of participants (49%) reported that they had difficulty performing ADLs and IADLs due to thumb pain.

Conclusion: Thumb pain experienced in CHTs not only impacts their work life, but also their personal everyday lives. Factors that were identified as contributing to thumb pain at work were related to manual therapy techniques and orthotic fabrication. Of concern is the number of certified hand therapists who continue to work while in pain despite receiving treatment for it.

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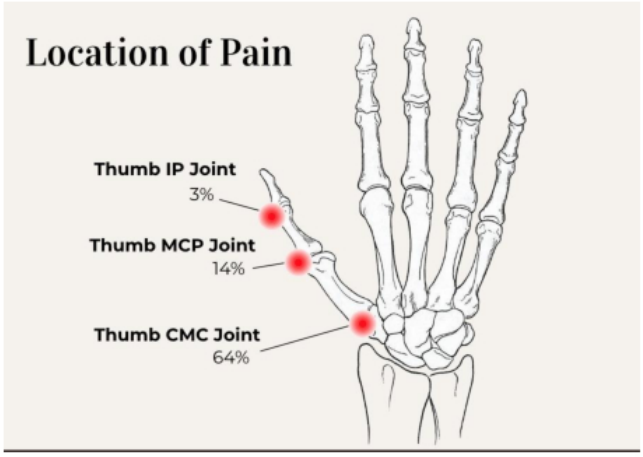
Location of Pain
Thumb IP Joint
3%
Thumb MCP Joint
14%
Thumb CMC Joint
64%

IMAGE CAPTION:

TABLE:

Note: The PDF table below is only an approximation of the HTML content and may not match formatting exactly.

Activities Frequently Performed by CHTs			
Work-tasks	Perform work-tasks (N)	Received Continuing Education on task (N)	Believes task contributes to thumb pain (N)
Massage (scar/tissue mobilization)	195	165	180
Orthotic Fabrication	194	181	132
PROM	192	146	120
Joint Mobilizations	190	185	154
Typing notes on computer	185	39	29
Ultrasound	164	124	11
Wound care and debridement	162	137	20
Myofascial release	136	131	69
Writing notes with pen/pencil	81	21	19
Manual lymphatic drainage	70	89	12
Ice massage	65	48	0
Other	28	16	22
Total	197	192	197

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*The sum of numbers in each column does not equal the number of respondents since multiple responses were encouraged.

TABLE FOOTER: *The sum of numbers in each column does not equal the number of respondents since multiple responses were encouraged.

TABLE TITLE: Activities Frequently Performed by CHTs

TITLE:

THUMB PAIN EXPERIENCED IN HAND THERAPISTS

CONTROL ID: 4114888

TITLE: GONIOMETRIC BIOFEEDBACK DEVICE DEVELOPMENT

AUTHORS (FIRST NAME INITIAL, LAST NAME): L. B. Pewitt[1], N. Fadell[3], H. Shin[2], A. Westman[3], K. Koogler[3], J. Rogers[2], M. Pet[3]

INSTITUTIONS (ALL):

1. Department of Occupational Therapy, Washington University in St. Louis, Kirkwood, MO, United States.
2. Northwestern University, Chicago, IL, United States.
3. Washington University in St. Louis, St. Louis, MO, United States.

ABSTRACT BODY:

Purpose: Biofeedback during hand rehabilitation is effective, engaging, and may lead to improved outcomes. We believe that real-time range of motion feedback has the potential to motivate patients and increase exercise compliance, thus maximizing the benefit of rehabilitation and improving functional outcomes. To this end, our team developed a wearable, wireless, smartphone app-linked goniometer that continuously tracks proximal interphalangeal joint (PIPJ) angle (Figure 1). Our primary purpose was to evaluate the accuracy of the wearable goniometer device when measuring PIPJ motion compared to gold standard fluoroscopy and clinical standard handheld goniometry. Our secondary purpose was to assess feasibility of device use during hand therapy exercises.

Methods: To assess the accuracy of the device compared to fluoroscopic measurements, subjects were fitted with the wearable device on their right index finger PIPJ. The PIPJ was then actively flexed and extended through its complete range of motion under live fluoroscopy (lateral projection). Paired angular measurements were derived from both the wearable device and fluoroscopic images. This process was then repeated for the left index finger PIPJ.

To assess the accuracy of the device compared to handheld goniometry, subjects donned the device and performed four to five positions of progressive flexion while wearing the device. Paired angular measurements were derived from the wearable device and a handheld goniometer operated by a certified hand therapist (CHT). The bilateral index, middle, and small fingers were evaluated in each subject.

To assess the feasibility of device use during therapy exercises, a CHT guided subjects through a simulated home exercise program (HEP) consisting of composite fist, PIP blocking, blocked extension while the device measured PIPJ angle in real time.

Bland-Altman plots were used to visualize correspondence between the device measurement and the fluoroscopic or handheld goniometer measurements. Means were compared using a paired t-test.

Results: Six subjects (12 fingers, 259 paired data points) were included in the fluoroscopy portion of the study. Mean difference between device and fluoroscopic measurement was 0.9^{O} (SD = 2.2^{O}, 95% CI = 0.7^{O} – 1.2^{O}), with errors ranging from -4.7^{O} to $+5.6^{O}$ (Figure 2A).

Nine subjects (27 fingers, 212 paired data-points) were included in the handheld goniometer portion of the study. Mean difference between device and handheld goniometer measurement was 0.6^{O} (SD = 5.2^{O}, 95% CI = -0.1^{O} – 1.3^{O}), with errors ranging from -13.1^{O} to 12.9^{O} (Figure 2B).

The device successfully tracked PIPJ angle in real time during a simulated HEP for all fingers evaluated.

Conclusion: The wearable goniometer device demonstrates acceptable accuracy as the mean of measurements generated by the wearable goniometer device was fewer than 1^{O} greater than the mean derived from fluoroscopy and handheld goniometry. All measurements generated by the device were within 6^{O} of fluoroscopy-derived gold-standard measurements indicating that the device is acceptably precise. The wearable goniometer device successfully tracks PIPJ angle during hand therapy exercises and is a feasible method of providing real-time biofeedback. This wearable goniometer device may be used to maximize the overall benefit of rehabilitation including increasing patient motivation, improving compliance with HEP, and setting and monitoring motion goals.

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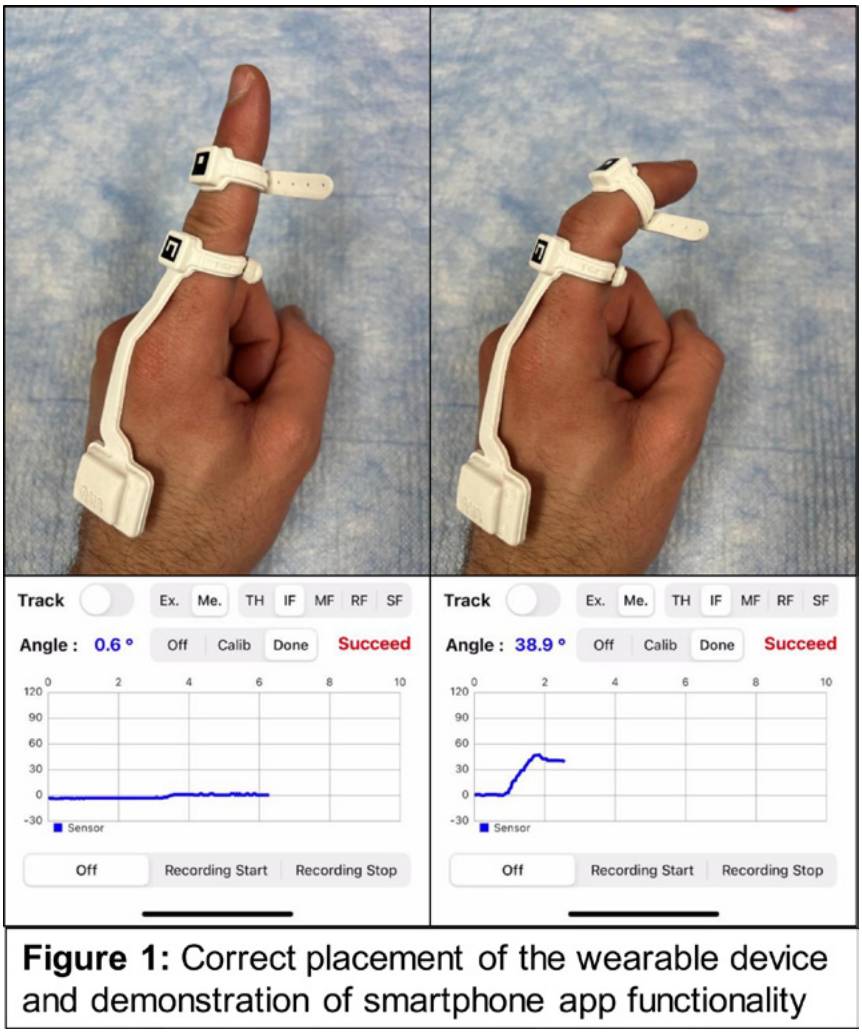

Figure 1: Correct placement of the wearable device and demonstration of smartphone app functionality

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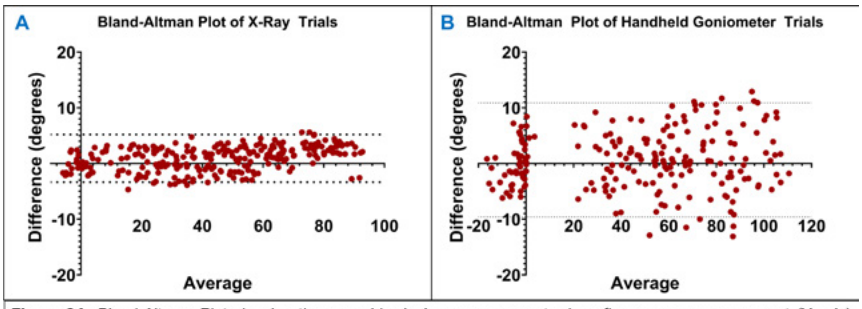

Figure 2A: Bland-Altman Plot showing the wearable device measurement minus fluoroscopy measurement (Y axis) versus the average of the two measures (X axis). **Figure 2B:** Bland-Altman plot showing the wearable device measurement minus handheld goniometry (Y axis) versus the average of the two measures (X axis).

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IMAGE CAPTION: Figure 1. Correct placement of the wearable device and demonstration of smartphone app functionality. Figure 2A: Bland-Altman Plot showing the wearable device measurement minus fluoroscopy measurement (Y axis) versus the average of the two measures (X axis). Figure 2B: Bland-Altman Plot showing the wearable device measurement minus handheld goniometry (Y axis) versus the average of the two measures (X axis).
(no table selected)
TITLE: GONIOMETRIC BIOFEEDBACK DEVICE DEVELOPMENT

CONTROL ID: 4115450
TITLE: THE SHORT-TERM BENEFITS OF FORMAL HAND THERAPY IN PATIENTS STATUS-POST RADIAL FOREARM FREE FLAP: A RETROSPECTIVE CASE SERIES
AUTHORS (FIRST NAME INITIAL, LAST NAME): J. Nguyen[1]
INSTITUTIONS (ALL):
1. Hand Therapy, NYU Langone Orthopedic Center, Brooklyn, NY, United States.
ABSTRACT BODY:
Purpose: The purpose of this case series is to determine the short-term outcomes in patients status-post a radial forearm free flap (RFFF) procedure who have undergone a formal hand therapy program.
Methods: A retrospective analysis of eight patients was conducted at a hospital-based outpatient clinic. All patients were status-post RFFF for gender affirming phalloplasty procedures. With this approach, a free flap is taken from the forearm, including nerves and vascular structures, to create a neophallus. A non-meshed split thickness graft is then taken from the thigh to cover the forearm donor site. Patients began formal hand therapy with a certified hand therapist between 2-3 weeks post-op. The QuickDASH was used as the patient-reported outcome measure. The QuickDASH creates a symptom score of 0-100%. A higher score indicates a greater level of symptom severity, whereas lower scores indicate a lower level of symptoms. Objective measures taken included wrist and forearm active range of motion (AROM) with a goniometer, edema of the hand via tape measure using the figure-8 method, and grip strength with a Jamar dynamometer. Measurements were taken at initial evaluation and discharge. All patients received the same standard of care including wound care, scar management, edema management, range of motion exercises, and strengthening.
Results: On average, patients received 16 hand therapy visits over a course of 13 weeks.
At initial evaluation, an average QuickDASH symptom score of 68.18% was reported. Patients had on average a 48° extension and 38° flexion discrepancy compared to the non-operative wrist. They had on average a 46° of supination and 25° of pronation discrepancy compared to non-operative forearm. Primary strength measurements were delayed until approximately 6 weeks post-op secondary to surgical precautions. They had on average 58.77% grip strength compared to the non-operative limb. On average, patients presented with an extra 3.9 cm of edema in the surgical hand compared to the non-operative side.
At discharge, only 5 of the 8 patients completed the QuickDASH. The average reported QuickDASH symptom score was 9.55%. Patients had on average a 11° extension and 6° flexion discrepancy compared to the non-operative wrist. They had on average a +1° of supination and equal pronation compared to non-operative forearm. They had on average 85.87% of their grip strength of the non-operative limb. Patients continued to maintain on average an extra 2.2 cm of edema in the operative hand compared to the non-operative side.
Conclusion: After approximately 3 months post-op and formal hand therapy, patients status-post a RFFF can expect near normal AROM in the operative wrist and forearm. At time of discharge, patients had on average 85.87% of their grip strength when compared to the non-operative limb. As most surgeries are performed on the non-dominant hand, this is near normal when using the 10% rule for grip strength norms. After completing their course of hand therapy, patients report minimal functional deficits in the upper extremity via the QuickDASH. One lingering presentation appears to be dorsal hand edema as patients continue to have on average an extra 2.2 cm of edema when compared to the non-operative hand. Further studies are necessary to determine the duration of post-operative edema. In general, further long-term studies are needed to determine the overall functional outcomes of the upper extremity after this procedure.
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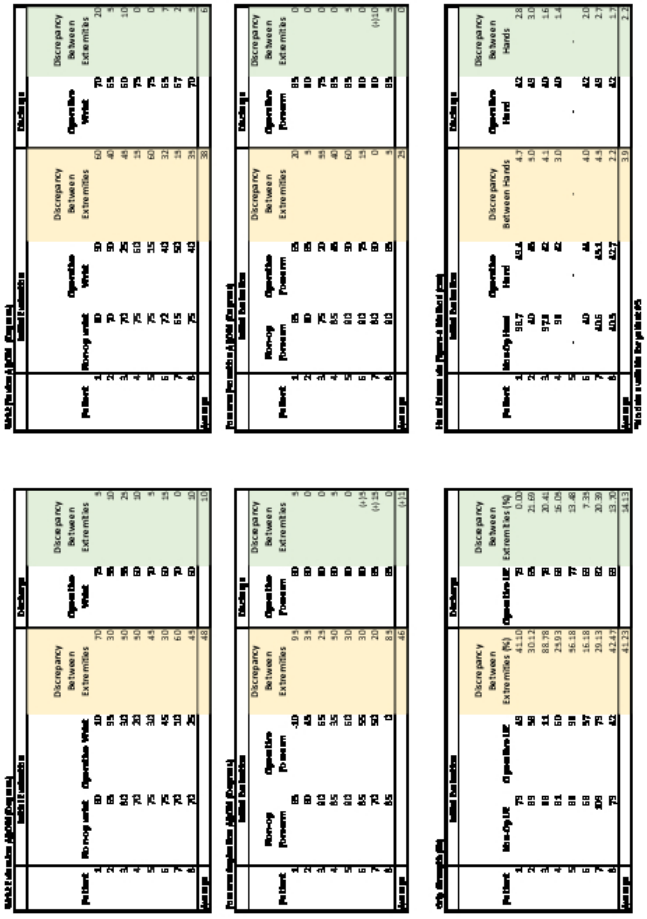
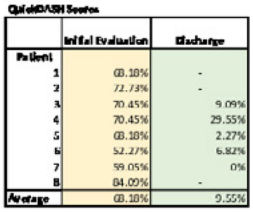
Conclusion: After approximately 3 months post-op and formal hand therapy, patients status-post a RFFF can expect near normal AROM in the operative wrist and forearm. At time of discharge, patients had on average 85.87% of their grip strength when compared to the non-operative limb. As most surgeries are performed on the non-dominant hand, this is near normal when using the 10% rule for grip strength norms. After completing their course of hand therapy, patients report minimal functional deficits in the upper extremity via the QuickDASH. One lingering presentation appears to be dorsal hand edema as patients continue to have on average an extra 2.2 cm of edema when compared to the non-operative hand. Further studies are necessary to determine the duration of post-operative edema. In general, further long-term studies are needed to determine the overall functional outcomes of the upper extremity after this procedure.



Objective Measures (Initial Evaluation vs Discharge)



	Initial Evaluation	Discharge
Patient		
1	68.18%	-
2	72.73%	-
3	70.45%	9.09%
4	70.45%	29.55%
5	68.18%	2.27%
6	52.27%	6.82%
7	59.05%	0%
8	84.09%	-
Average	68.18%	9.55%

QuickDASH Scores (Initial Evaluation vs Discharge)

Graft Site Healing Progression

IMAGE CAPTION: Objective Measures (Initial Evaluation vs Discharge) QuickDASH Scores (Initial Evaluation vs Discharge) Graft Site Healing Progression
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TITLE: THE SHORT-TERM BENEFITS OF FORMAL HAND THERAPY IN PATIENTS STATUS-POST RADIAL FOREARM FREE FLAP: A RETROSPECTIVE CASE SERIES

CONTROL ID: 4115476

TITLE: CRITICALLY APPRAISED PAPER: Klevberg G, Zucknick M, Jahnsen R, Eliasson AC. Development of hand use with and without intensive training among children with unilateral Cerebral Palsy in Scandinavia. Developmental Neurorehabilitation. Dev Neurorehabil. 2023; 26(3):163-171.

AUTHORS (FIRST NAME INITIAL, LAST NAME): V. Bagley[1], A. Bates[1], G. Bachman[2]

INSTITUTIONS (ALL):

1. Northern Arizona University, Scottsdale, AZ, United States.
2. Occupational Therapy, Northern Arizona University, Phoenix, AZ, United States.

ABSTRACT BODY:

Purpose: The purpose of this longitudinal cohort study was to investigate the efficacy of Constraint Induced Movement Therapy (CIMT) in children with UCP. It aimed to demonstrate the long-term positive effects on motor function development. The study aimed to provide insight into the optimal developmental window, allowing for improved neuroplasticity in children with UCP.

Methods: Norwegian participants were selected based on registration through the Norwegian Quality & Surveillance Registry CP (NorCP) with previous intensive hand training & completion of 2 AHAs (Assisting Hand Assessment). Swedish participants' selection included data collection from 2004. Inclusion criteria included classification of brain injury, ages, & the availability of AHA scores. Exclusion criteria included those no parental consent, no hx of CIMT, failing to meet brain injury criteria, lacking registration with NorCP, & non-residences of Norway or Sweden. The Norwegian cohort received tx at a regional pediatric rehab unit. The Swedish cohort received tx at Karolinska Hospital. Baby-CIMT & CIMT sessions were provided by a trained parent, teacher, or OT. The first experimental group, CIMT, had sessions for 2hr/day for 2mo (80-120 hrs). The 2nd experimental group, Baby-CIMT, received tx during a 6wk period for daily 30mins of training for a total of 30-40 hrs. Baby-CIMT training time was reduced due to age. The CIMT & Baby-CIMT groups n=195, while the non-intervention (NIT) group n=139. The total participants, n=334. Group 1, CIMT, n=144. The intervention took place in the home or preschool & was provided by a trained parent or teacher. This intervention lasted around 2mo (80-120 hrs). Group 2, NIT, n=139 that received standard pediatric rehab services. An OT or PT provided the standard practice interventions. Group 3, Baby-CIMT, n=51. The intervention process was completed in the same manner as the CIMT group. The study used 2 outcome measures which are both reliable & valid to assess functional abilities & manual dexterity. The AHA & MCAS were selected as both have good inter-rater reliability. AHA evaluates the affected hand in bimanual play by using a scale for performance. The second is the MACS or the mini-MCAS which was developed to categorize manual handling abilities of the CP population by their ability levels. This study relies on the AHA & the MACS which measure functional abilities, manual dexterity, & developmental progress in the UCP population.

Results: Findings showed intensive training could prolong periods of developmental growth for children receiving CIMT. The Baby-CIMT group did not show a significant change (p=.45) compared to the NIT group, but showed a positive trend. Statistical tests were appropriate. Pearson’s correlation coefficient & Fischer’s exact test were used to compare the categorical data. Welch’s Independent T-test was used to compare continuous variables of the AHA & MCAS, which is appropriate as this analysis does not require equal variance between populations. A one way between groups ANOVA was used to compare the means between training groups, appropriate for more than 2 independent groups. Tuckey’s test was used to compare the means between sessions for the AHA (simultaneous pairwise comparisons). Significance was not noted (p=.342) between countries. Tables represent the data used for analysis. There were limiations to this study. Selection bias & convenience sampling were noted as participants were only from two countries, age, registration in NorCP, or a hx of intensive training leading to lack of generalizability. Measurement bias was also reported due to subjectivity of the reading of both the AHA & MCAS. Lack of blinding could result in a bias of the subjective reading of the outcome measures. Intervention bias was seen in experimental groups as tx were given by either trained teachers or parents. The NIT only received standard care. The study did not run a power analysis, however, because of the large sample size & limited variable, adequate power is inferred. Group size may have led to differences in reported significance. Data was adjusted based on the participants' country of origin, but not on group size. Authors also state Botox injections may have skewed final results. CIMT participants did not meet the recommended hours for training, instead averaged 80-120 hrs. No dropout rate was reported, but participants remained the same through the study.

Conclusion: Standard interventions & earlier implementation facilitate neural connections that can transmit information to an affected limb. The study concludes that brain ability to self-repair & make motor adaptations, intensive training should occur when a child is young. There is a need for more long-term studies that support early interventions among the UCP population. Future research could compare CIMT protocol on older children, focus on other countries with different standard practices of intensive hand training, & improve generalizability of CIMT in other populations.

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CONTROL ID: 4115871

TITLE: DRY NEEDLING FOR LATERAL ELBOW TENDINOPATHY IN OCCUPATIONAL THERAPY: A RETROSPECTIVE PILOT STUDY AND REVIEW OF STATE LEGISLATION

AUTHORS (FIRST NAME INITIAL, LAST NAME): P. Bakshi[1], H. Medsker[1], S. Murphy[1], M. O'Daniel[1], K. Peters[1], A. Hatter[1], B. Snodgrass[1]

INSTITUTIONS (ALL):

1. Indiana State University, Terre Haute, IN, United States.

ABSTRACT BODY:

Purpose: Dry needling (DN) is an emerging modality used to manage pain, restore musculoskeletal function, and improve participation (American Physical Therapy Association, 2013), with emerging evidence of effictiveness in plantar fascitis (Dunning et al., 2018) and chronic neck pain (Martín-Sacristán et al., 2022). The complexity of the pathogenesis and pathophysiology of lateral elbow tendinopathy (LET) make it challenging to treat (Challoumas et al., 2020). A variety of interventions are recommended for the management of LET, but there remains no universally accepted modalities (Ma & Wang, 2020). According to JOSPT guidelines, DN treatment for LET has “B” level of evidence suggesting moderate success with symptom treatment (Lucado, et al., 2022). However, only three studies met the inclusion criteria. State licensing boards, vary in their position on the practice of DN by occupational therapists with majority, staying silent on the statute.

The purpose of this study was to determine the effectiveness of DN in LET. The secondary aim of the study was to provide a review of current state legislation across the United States on DN for Occupational Therapists (OT).

Methods: A pilot study with retrospective design examined existing medical records of a practicing OT certified in DN in Indiana. Medical charts that had a diagnosis of LET were included. Control group (traditional therapy) charts were collected from July 2019 to May of 2021, prior to OT receiving certification in DN. Experimental group (DN & traditional therapy) charts were collected from January 2022 to June 2023. Outcome measures included Numerical Pain Rating Scale (NPRS) and QuickDASH collected at time of evaluation and discharge. Charts that did not contain outcome measures were excluded.

A review of state-specific legislation of occupational therapy’s practice of DN, updated position statements of the American Occupational Therapy Association (AOTA), American Society of Hand Therapy (ASHT), was conducted through internet searches, phone calls, and emails.

Results: 27 charts met inclusion criteria, however, only eight charts (6 experimental and 2 control) were selected for final data analysis due to missing data. Both groups had a reduction in pain from evaluation to discharge with number of visit ranging from 2 to 12. The experimental group had a statistically significant improvement (p=.02) while the control did not (p=.08). The unpaired t-test for comparison of pain levels between groups was not significantly different at evaluation (p=.32) or at discharge (p=.13). QuickDASH scores were missing at either evaluation or discharge and comparisons could not be made.

AOTA recently updated their policy “E.18: Interventions to Support Occupations” in 2023, which approved the use of dry needling and other emerging techniques that are used to support occupational function (AOTA Policy E.18, 2023). The American Society of Hand Therapists (ASHT) has no formal position on DN for practicing occupational therapists due to insufficient evidence to support or refute its efficacy (ASHT, 2016). As of February 2024, state legislation allows OTs to use DN in 10 states, while 24 states have no stance, and 16 states do not allow DN.

Conclusion: Results indicate that the addition of DN to traditional therapy had similar outcomes to traditional therapy alone. Both groups (traditional therapy and traditional therapy with DN) improved in pain intensity by discharge, but the DN group had a statistically significant change. Similarly, Uygur et al. (2021) compared outcomes of patients with lateral epicondylitis receiving standard care to dry needling and found that both groups improved in the Patient-Rated Tennis Elbow Evaluation (PRTEE). The dry needling group had statistically significant improvement compared to the standard of care group at the end of 3 months. However, given the small sample size, retrospective design and missing data, results of our study need to be interpreted with caution. Dry needling in lateral elbow tendinopathy shows promise, but ambiguity in state legislation limits inclusion of this intervention by OT in their daily practice. AOTA’s policy update (2023) is an opportunity to renew legislation efforts for the inclusion of DN in state licensure for OTs.

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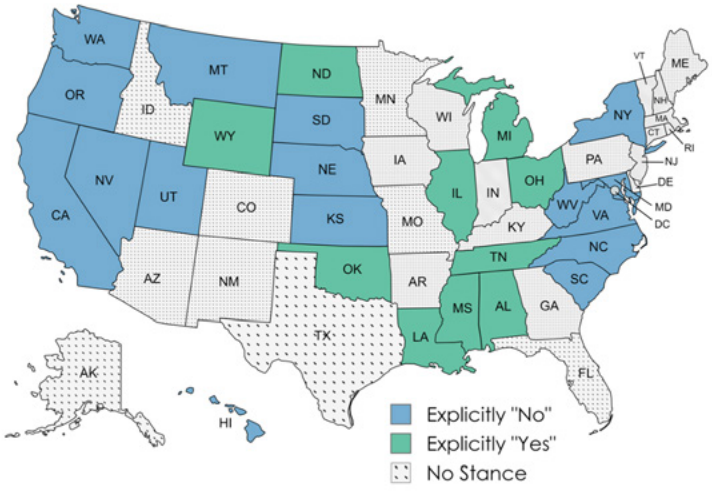
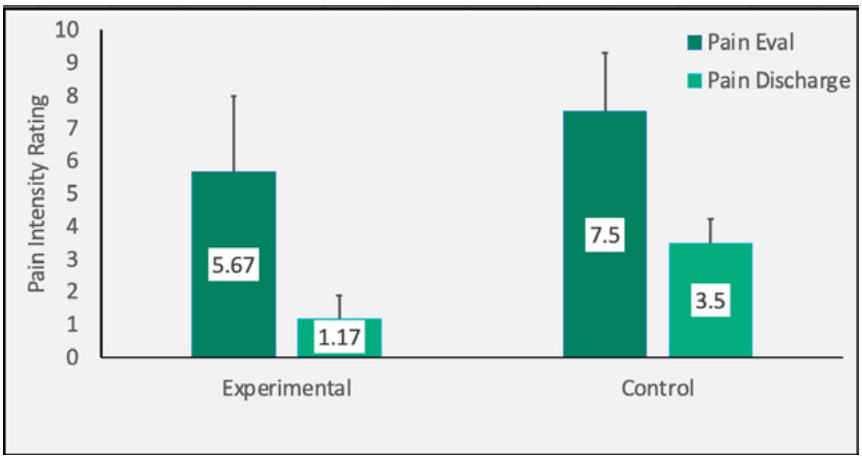


State Positions on the Practice of DN for Occupational Therapists



Comparison of Pain Level between Groups at Evaluation and Discharge

IMAGE CAPTION: State Positions on the Practice of DN for Occupational Therapists Comparison of Pain Level between Groups at Evaluation and Discharge
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TITLE: DRY NEEDLING FOR LATERAL ELBOW TENDINOPATHY IN OCCUPATIONAL THERAPY: A RETROSPECTIVE PILOT STUDY AND REVIEW OF STATE LEGISLATION

CONTROL ID: 4116522
TITLE: A Critically Appraised Paper on Virtual Reality Rehabilitation in Children with Brain Injury: A Randomized Controlled Trial
AUTHORS (FIRST NAME INITIAL, LAST NAME): A. Liechty[1], K. Ashby[1], G. Bachman[1]
INSTITUTIONS (ALL):
1. Occupational Therapy, Northern Arizona University, Phoenix, AZ, United States.
ABSTRACT BODY:
Purpose: This study examined the impact of combining a virtual reality (VR) rehabilitation system with occupational therapy (OT) in hospital rehabilitation setting. Participants were children with brain injuries impacting upper limb function (ULF). The intervention included VR-based therapy and conventional OT to discover if VR impacts ULF in this population. This article is clinically relevant because implementing VR with traditional OT is an emerging practice that can enhance voluntary movement and therapeutic outcomes more than just conventional OT alone, specifically in pediatric brain injury populations. VR is becoming a more accessible tool that can be introduced to rehabilitation clinics to motivate children during therapy in a fun, engaging way to yield functional outcomes.

Limitations in this study include lack of generalization due to location and population, general focus on children with cerebral palsy (CP), and lack of total immersion in the VR system. Future research should include a more diverse population, a greater variety of brain injuries, and VR experiences with varied levels of immersion.
Methods: Participants were from rehab institutions in Korea and China. Children aged 3-18 with CP or other brain injuries experiencing upper limb (UL) dysfunction were included. Children with severe intellectual disabilities, visual impairments, UL injections, chemo denervation, constraint-induced therapy, surgery, or changes to their antiseizure medications were excluded. Participants were randomly assigned to either the control or intervention group. A total of 80 children were enrolled in the study, however two dropped out (control group).

The control group had 40 children (38 after dropouts) and received two 30-minute sessions of conventional OT daily in a 1:1 setting. Each OT session consisted of 10 minutes of the following: stretching, strengthening exercises, and task-oriented training. The intervention group (40), had a different regimen: one 30-minute session of VR training using the RAPAEL Smart Kids VR tool, and one 30-minute conventional OT session each day.

The intervention was administered five days a week for four weeks, with a follow-up at eight-weeks post-intervention. Assessments were administered by one common blind assessor. All therapies were carried out by OTs blinded to group assignments. This blinding technique promotes unbiased evaluation of outcomes in all participants.

Assessments were used at baseline, 4-weeks intervention, and 8-weeks post-intervention. The Upper Limb Physician Rating Scale (ULPRS) assesses arm movement patterns. The Pediatric Evaluation of Disability Inventory Computer Adaptive Test (PEDI-CAT) measures functional skills in performance of activities of daily living (ADL), mobility, social-cognitive, and responsibility. The Melbourne Assessment of Unilateral Upper Limb Function-2 (MA-2) measures unilateral quality of UL movement. Each shows strong validity and reliability. Different computerized three-dimensional motion analysis (3DMA) programs measured joint angles in the UL: Vicon and OptiTrack, a gold standard; and Motion Analysis Corporation, used in biomechanical analysis. These measures offer insights into the efficacy of therapeutic interventions, assessing functional parameters, and facilitating outcomes in pediatric rehab.
Results: The ULPRS showed improvement in movement for both groups but was not significant. The PEDI-CAT (interval data) show significant improvement in ADLs ($p<0.01$). A Mann-Whitney U test compared functional differences within both groups. The social-cognitive domain improved in the VR group, but without significance. Mobility and responsibility show no significance between groups. The VR groups show significant improvement in all subscales of the MA-2. A linear mixed model was used to analyze ordinal data from the MA-2 and ULPRS. Independent T tests compare improvement between groups. Bonferroni was used on selective tests to reduce possibilities of false positives. Kinematic data (3DMA) measured joint angles of ULF. Forearm supination range of motion (ROM) was significant in the VR group ($p=0.02$), change was noted between baseline and the 8-week for both groups. Wrist extension ROM improved in the VR group, with no significance. The spatio-temporal parameters show improvement for control, with no significance. All statistical tests used were appropriate for the scales of measure.

Results show potential for VR in improving functional outcomes but continued research is needed.
Conclusion: VR training shows enhanced dexterity, performance of ADLs, and forearm supination in children with brain injury. VR training is equally as effective as conventional OT for ULT in this population. Incorporating VR may complement therapy by offering motivation and enhancing motor learning. Further research could generalize the effectiveness of VR with traditional OT. Clinics can consider VR as an additional intervention to yield improved functional outcomes in pediatric clients.
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Assessments were used at baseline, 4-weeks intervention, and 8-weeks post-intervention. The Upper Limb Physician Rating Scale (ULPRS) assesses arm movement patterns. The Pediatric Evaluation of Disability Inventory Computer Adaptive Test (PEDI-CAT) measures functional skills in performance of activities of daily living (ADL), mobility, social-cognitive, and responsibility. The Melbourne Assessment of Unilateral Upper Limb Function-2 (MA-2) measures unilateral quality of UL movement. Each shows strong validity and reliability. Different computerized three-dimensional motion analysis (3DMA) programs measured joint angles in the UL: Vicon and OptiTrack, a gold standard; and Motion Analysis Corporation, used in biomechanical analysis. These measures offer insights into the efficacy of therapeutic interventions, assessing functional parameters, and facilitating outcomes in pediatric rehab.
Results: The ULPRS showed improvement in movement for both groups but was not significant. The PEDI-CAT (interval data) show significant improvement in ADLs ($p<0.01$). A Mann-Whitney U test compared functional differences within both groups. The social-cognitive domain improved in the VR group, but without significance. Mobility and responsibility show no significance between groups. The VR groups show significant improvement in all subscales of the MA-2. A linear mixed model was used to analyze ordinal data from the MA-2 and ULPRS. Independent T tests compare improvement between groups. Bonferroni was used on selective tests to reduce possibilities of false positives. Kinematic data (3DMA) measured joint angles of ULF. Forearm supination range of motion (ROM) was significant in the VR group ($p=0.02$), change was noted between baseline and the 8-week for both groups. Wrist extension ROM improved in the VR group, with no significance. The spatio-temporal parameters show improvement for control, with no significance. All statistical tests used were appropriate for the scales of measure. Results show potential for VR in improving functional outcomes but continued research is needed.

Conclusion: VR training shows enhanced dexterity, performance of ADLs, and forearm supination in children with brain injury. VR training is equally as effective as conventional OT for ULT in this population. Incorporating VR may complement therapy by offering motivation and enhancing motor learning. Further research could generalize the effectiveness of VR with traditional OT. Clinics can consider VR as an additional intervention to yield improved functional outcomes in pediatric clients.
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TITLE: A Critically Appraised Paper on Virtual Reality Rehabilitation in Children with Brain Injury: A Randomized Controlled Trial

CONTROL ID: 4117703

TITLE: RELIABILITY & VALIDITY OF THE MEASURES USED IN THE SOMATOSENSORY REHABILITATION METHOD WITH INDUCED SENSORY CHANGES: A PSYCHOMETRIC STUDY

AUTHORS (FIRST NAME INITIAL, LAST NAME): M. Li[2], E. Zheng[1], C. Su[2], H. Nguyen[2], I. Quintal[3], T. Packham[1]

INSTITUTIONS (ALL):

1. School of Rehabilitation Science, McMaster University, Hamilton, ON, Canada.
2. McMaster University, Hamilton, ON, Canada.
3. University of Sherbrooke, Sherbrooke, QC, Canada.

ABSTRACT BODY:

Purpose: Allodynography, the rainbow pain scale (RPS), and esthesiography are core sensory evaluations used in the somatosensory rehabilitation method (SRM). Preliminary work in patients suggest good reliability of allodynography and the RPS but more research in larger samples is needed to expand our understanding of the range of measurement properties.

We undertook testing of evoked sensory changes to enact a reference standard (known area where sensation-altering creams were applied), creating an opportunity to robustly examine discriminative (diagnostic) validity between sensory phenomena as well as inter-rater reliability. Our primary research question was what is the inter-rater reliability and discriminative validity of allodynography, the rainbow pain scale and esthesiography?

Methods: We recruited healthy volunteers from students and faculty at McMaster University to attend a laboratory testing session for a cross sectional measurement study. After giving informed consent, participants were randomly assigned to have an active topical cream applied to one forearm, and a control to the other. Active creams (Zostrix™ 0.075% capsaicin or EMLA™ 2.5% lidocaine and 2.5% prilocaine) were applied to a 2cm x 2cm square on the volar forearm. IcyHot™ (16% menthol and 11% camphor) was applied to the contralateral forearm as a control condition, to elicit a cooling sensation without altering the light touch threshold. Participants were blinded to which active cream was applied, and to what arm (right or left). Two blinded raters independently tested participants, starting with screening for allodynia using a 15g (#5.18)monofilament and asking if the pressure elicited at least 3/10 on a numeric rating scale for pain, following standardized evaluation procedures. If no allodynia was elicited, then the rater proceeded to screen for sensory loss using a 0.2g (#3.22) monofilament, conducting esthesiography if loss was identified. If allodynia was identified on screening, then allodynography was conducted on that forearm. The area of sensory alteration was measured using a clear plastic ruler (length x width in cm). Descriptive statistics, contingency tables, weighted correlations (kappa) and intraclass correlations (ICCs) were calculated to address our research questions.

Results: 96 healthy volunteers participated in our study with an average age of 23.7 years (range 19-58) and female predominance (78%). Interim analysis after testing 61 participants confirmed seemingly random but widespread model failure (i.e. where participants did not report the sensory alteration intended), therefore we partially unblinded participants by informing them of their active group allocation before testing, while retaining blinding of which arm had the active cream. Combining all screening results, the SRM methods had a sensitivity of 62.5% and specificity of 53.1% however, these were influenced by model failures as only 33% of tests had active findings when there should have been 50% findings if sensory changes were consistently elicited. If we considered the examinations only those who were partially unblinded, sensitivity was similar at 63.6% but specificity dropped to 41.7%. Splitting apart screening for allodynia and hypoesthesia in all cases, sensitivity to identify allodynia was 53.3% (specificity 56.3%) and sensitivity to identify hypoesthesia was 36.4%, with a specificity of 48.6%. Across all tests by both raters (n=384 tests on 192 arms), we saw discordance between the expected and observed conditions 52% of the time.

Estimates of inter-rater reliability were generally moderate when the rating type was concordant with the expected condition (See Table 1).

Conclusion: Despite our aspirations to conduct a robust psychometric study using induced sensory alterations, perception and anticipation and lack of elicitation of clear sensory alterations appeared to add important variability to our findings. Healthy voluteers reported struggling to discriminate between induced sensory loss and pain. The lack of a consistent response to evoked alterations also reduced statistical power for evaluating reliability. The resulting estimates for reliability and discriminative validity should be used with caution to judge the measurement properties of the SRM evaluations of allodynography, the rainbow pain scale and esthesiography as they are likely imprecise and unstable.

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TABLE:
Note: The PDF table below is only an approximation of the HTML content and may not match formatting exactly.

Table 1. Reliability		
.	Inter-rater reliability: all data	Inter-rater reliability: only data concordant to model

Allodynography ICC(2,1) Individual measures	0.49 [95%CI 0.15-0.73] P=0.004	0.52 [95%CI 0.07-0.80] p=0.01
Landis and Koch rating	Moderate	Moderate
Rainbow Pain Scale (weighted Kappa)	.	.
Landis and Koch Rating	Moderate	Moderate
Esthesiogrraphy ICC(2,1) Individual measures	0.19 [95%CI crosses 0]	0.33 [95%CI crosses 0]
Landis and Koch Rating	Poor (and unstable)	Fair (but unstable)
Note: Weighted kappa values consider the extent of disagreement, not just rater agreement.		

TABLE FOOTER: Note: Weighted kappa values consider the extent of disagreement, not just rater agreement.
TABLE TITLE: Table 1. Reliability
TITLE: RELIABILITY & VALIDITY OF THE MEASURES USED IN THE SOMATOSENSORY REHABILITATION METHOD WITH INDUCED SENSORY CHANGES: A PSYCHOMETRIC STUDY

CONTROL ID: 4117807
TITLE: CONSERVATIVE MULTI-MODAL TREATMENT OF CHRONIC LATERAL ELBOW PAIN: A CASE SERIES
AUTHORS (FIRST NAME INITIAL, LAST NAME): M. Lott[1], M. Jeffries[1]
INSTITUTIONS (ALL):
1. Hand Therapy, Crystal Clinic Orthopaedic Center, Akron, OH, United States.
ABSTRACT BODY:
Purpose: This retrospective case series investigated the effectiveness of an occupational therapist's (OT) multi-modal treatment approach in decreasing pain in patients with chronic lateral elbow pain.
Methods: Data was collected by retrospectively reviewing charts of patients who were primarily treated by a single OT for lateral epicondylitis, lateral elbow pain, or radial tunnel syndrome between 2018 and 2023. Pain ratings were gathered from the initial and last visit of 84 patients, with long-term follow-up pain ratings obtained from 37 of these patients. Initial visit pain ratings were then compared to the last visit and long-term pain ratings to analyze the effectiveness of multi-modal conservative treatment.
Results: Most commonly utilized treatments included gua sha, cupping, dry needling, nerve glides, microcurrent, and postural correction. Results indicated statistical significance regarding decreased pain with p-value <0.001. Conservative treatment was effective in significantly decreasing pain for 94% of patients. 6% of patients resulted in surgery. The median number of visits to discharge was 4.5 and the median duration of treatment was 39 days.
Conclusion: Chronic lateral elbow pain is a multi-faceted condition, which requires a combination of interventions to appropriately treat. Multi-modal conservative treatment was effective in significantly decreasing short-term and long-term pain ratings of chronic lateral elbow pain. Continued research is needed to evaluate the effectiveness of multi-modal approaches.
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TITLE: CONSERVATIVE MULTI-MODAL TREATMENT OF CHRONIC LATERAL ELBOW PAIN: A CASE SERIES

CONTROL ID: 4117832

TITLE: GRIP STRENGTH MEASUREMENTS TAKEN IN OUTPATIENT PHYSICAL THERAPY PRACTICE COMPARED TO ESTABLISHED NORMS: A RETROSPECTIVE OBSERVATIONAL STUDY

AUTHORS (FIRST NAME INITIAL, LAST NAME): F. Aerts[2], B. Alwood[1], B. Singh[3]

INSTITUTIONS (ALL):

1. Andrews University, Berrien Springs, MI, United States.
2. Manchester University, Ft. Wayne, IN, United States.
3. Midwestern University, Downers Grove, IL, United States.

ABSTRACT BODY:

Purpose: In 2018, Wang et al. established normative grip strength values using US National Institutes of Health Toolbox handgrip data. As a recommendation for future research, Wang et al. reported that future studies should endeavor to validate normative equations using new independent samples. Operational variability may impact comparability of grip strength measurements obtained in clinical practice to the established norms. The objective of this study is to validate measurements taken in an outpatient physical therapy practice to the norms published by Wang et al.

Methods: The Institutional Review Board approved the data collection for this retrospective observational study.

Participants

To allow for norm comparison with the study of Wang et al, the following subjects were included: (1) subjects within age 18 to 85; (2) subjects with <30% between-side difference in grip strength; (3) subjects with grip strength values within the 1.5 interquartile range of the mean for participants of same sex and age-group.

The data for the study was collected during the usual care of patients within one outpatient rehabilitation facility of a large non-profit health organization. Records were collected for the timeframe of January 1, 2018, to August 31, 2019. During that time, physical therapists treated 5039 individual patients for a total of 5866 treatment episodes. After taking out the multiple treatment episodes patients, missing or unclear data were removed and final 976 data were included in the study. The data were coded and none of the included patients and providers could be identified during further analyses.

A calibrated Jamar dynamometer was used. Participants were instructed to squeeze the dynamometer as hard as they could while seated in an upright posture, with arms by their sides, elbows flexed to 90°, and forearms in a neutral position. The force associated with the maximal trial was documented in kilograms.

Statistical Analysis

Statistical analysis was performed using the statistical program for the social sciences version 28 for windows (SPSS, IBM Corporation., Armonk, NY).

Descriptive statistics were calculated to illustrate the participant's characteristics. Categorical data is presented in frequencies and percentages. Continuous data is presented in mean, standard deviation (SD). Grip strength data is presented in mean, SD, 95% confidence intervals (CI_{95}) and percentiles (P_{25}-P_{50}-P_{75}).

First, the strongest and weakest side of our study were compared to the dominant and non-dominant side, respectively, using the reference tables from Wang et al. Patients were stratified by sex and 13 age groups.

Secondly, the strongest grip strength from our sample compared to the predicted dominant grip strength using the equations for dominant predicted grip strength from Wang et al.

Male: $-29.959 - 3.095E^{-05} \times (age^3) + 38.719 \times (height) + 0.113 \times (weight)$

Female: $-22.717 - 1.920E^{-05} \times (age^3) + 30.360 \times (height) + 0.048 \times (weight)$

The coefficient of determination (adjusted r^2) was used for calculations.

Absolute agreement between observed and predicted grip strength was assessed using interclass correlation coefficient (ICC).

In addition, the agreement was visually assessed with Bland–Altman (B&A) plots including reference lines superimposed on the 1plots. The reference lines represent the mean difference of the 2 measurements and the width of the 95% limits of agreements (mean difference +/- 1.96 SD).

T-tests and F-tests were used to compare means. The level of significance was set at α=0.05 for all statistical tests. Prior to analysis, data was visually inspected for assumptions of normality and linearity.

Results: Strength was assessed by 14 different providers using 5 different instruments. 976 patients had grip strength measurements taken at the initial evaluation of which 558 (57%) were females and 418 (43%) were males. The mean

grip strength in 47 of 52 group comparisons showed no significant difference from Wang et al. Significant individual differences were noted between the observed grip strength and the predicted grip strength calculated using Wang et al.'s reference regression equations.

Conclusion: Despite operational variability, grip strength measurements obtained in daily clinical practice compare with the grip strength normative values obtained in more stringent clinical research. Providers can use the strongest grip strength values obtained in clinical practice to compare with reported dominant hand grip strength values. Significant individual differences were noted between the observed grip strength and the predicted grip strength calculated using Wang et al.'s reference regression equations. The authors recommend standardizing testing procedures, but providers should not be discouraged by operational variability when taking grip strength measurements.

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TITLE: GRIP STRENGTH MEASUREMENTS TAKEN IN OUTPATIENT PHYSICAL THERAPY PRACTICE COMPARED TO ESTABLISHED NORMS: A RETROSPECTIVE OBSERVATIONAL STUDY

CONTROL ID: 4118297

TITLE: ESTABLISHING INTERRATER AND INTRARATER RELIABILITY FOR THE COMPLETE MINNESOTA DEXTERITY TEST

AUTHORS (FIRST NAME INITIAL, LAST NAME): J. R. Walter[1], K. Bandt[1], K. Hahn[1], E. Hawes[1], C. Landis[1], A. McDermott[1], R. Shockely[1], D. Arthur[1]

INSTITUTIONS (ALL):

1. Occupational Therapy, Jacksonville University, Jacksonville, FL, United States.

ABSTRACT BODY:

Purpose: The purpose of this study was to establish interrater and intrarater reliability for all five subtests of the Complete Minnesota Dexterity Test (CMDT). The current psychometric properties of the CMDT are outdated. It was anticipated that this study would establish a test procedure with sound inter and intrarater reliability that may be used in a future study to renorm the CMDT.

Methods: After obtaining Institutional Review Board approval at Jacksonville University, participants were recruited using paper flyers posted in the Health Sciences Building. Participants were also recruited verbally as they walked past the evaluation tables in a main hallway. Inclusion criteria were anyone over the age of 18 who was able to read and understand English. Individuals with a current upper extremity injury or back pain were excluded due to the fact that the test was administered in standing position. After written consent was obtained, two teams of three evaluators assessed participants. In an attempt to control for confounding factors such as practice and fatigue, the sequence of the subtests was varied (for example, participant 1 completed subtests 1-2-3-4-5, participant 2 completed subtests 2-3-4-5-1, etc.). This randomized, non-blinded cross-sectional study used an intraclass correlation coefficient (ICC) via two-way mixed effects model using the absolute agreement definition for interrater reliability and consistency definition for intrarater reliability. ICC values were used to establish reliabiilty with 95% confidence intervals.

Results: Forty-seven (47) individuals participated in the study with participants ranging from 18-53 years old. Overall, 42 (89.4%) of participants were right-handed and 5 (10.6%) of participants were left-handed. The sample size threshold for intrarater reliability was 46 and was exceeded. The sample size threshold of 33 participants per 3 raters (Group A = 25, Group B = 22) was not met for interrater reliability. There was very little variance in the ICC of interrater reliability which ranged from 0.994 to 1.000, and all ICC values were found to be significantly higher than 0.80, with 5% significance level. The ICC of the intrarater reliability was between 0.824 (two hand turn and place) and 0.912 (placing test). All ICC vlues were significantly higher than 0.80 with the exception of the two hand turn and place test.

Conclusion: The test procedures resulted in strong reliability metrics for interrater and intrarater reliability highlighted by significant findings within a 95% confidence interval. Despite the threshold being met for intrarater reliability, the participant threshold for interrater reliability was not, yet still had little variance. Establishing psychometric principles such as reliability is an essential step when evaluating a standardized tool such as the CMDT. The variation used when sequencing the subtest administration appeared to successfully control for potentially confounding factors such as practice and fatigue. It is anticipated that the test procedure established in this study will be used for in a future normative study. In the future, research regarding the usage of the test in clinical (for example, administered in sitting vs standing) and professional settings would prove valuable to determine testing criteria when performing the assessment.

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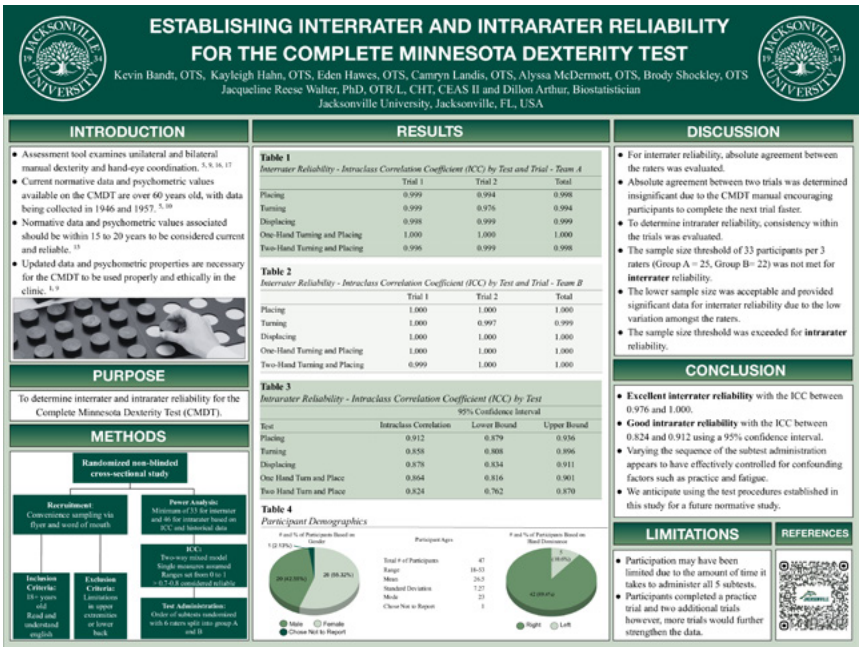

ESTABLISHING INTERRATER AND INTRARATER RELIABILITY FOR THE COMPLETE MINNESOTA DEXTERITY TEST

Kevin Bandt, OTS, Kayleigh Hahn, OTS, Eden Hawes, OTS, Camryn Landis, OTS, Alyssa McDermott, OTS, Brody Shockley, OTS
Jacqueline Reese Walter, PhD, OTR/L, CHT, CEAS II and Dillon Arthur, Biostatistician
Jacksonville University, Jacksonville, FL, USA

INTRODUCTION

- Assessment tool examines unilateral and bilateral manual dexterity and hand-eye coordination. [3, 9, 16, 17]
- Current normative data and psychometric values available on the CMDT are over 60 years old, with data being collected in 1946 and 1957. [7, 10]
- Normative data and psychometric values associated should be within 15 to 20 years to be considered current and reliable. [15]
- Updated data and psychometric properties are necessary for the CMDT to be used properly and ethically in the clinic. [1, 2]

PURPOSE

To determine interrater and intrarater reliability for the Complete Minnesota Dexterity Test (CMDT).

METHODS

Randomized non-blinded cross-sectional study

Recruitment: Convenience sampling via flyer and word of mouth

Power Analysis: Minimum of 33 for interrater and 46 for intrarater based on ICC and historical data

ICC: Two-way mixed model; Single measures assumed; Ranges set from 0 to 1 > 0.7-0.8 considered reliable

Inclusion Criteria: 18+ years old; Read and understand english

Exclusion Criteria: Limitations in upper extremities or lower back

Test Administration: Order of subtests randomized with 6 raters split into group A and B

RESULTS

Table 1

Interrater Reliability - Intraclass Correlation Coefficient (ICC) by Test and Trial - Team A

	Trial 1	Trial 2	Total
Placing	0.999	0.994	0.998
Turning	0.999	0.976	0.994
Displacing	0.998	0.999	0.999
One-Hand Turning and Placing	1.000	1.000	1.000
Two-Hand Turning and Placing	0.996	0.999	0.998

Table 2

Interrater Reliability - Intraclass Correlation Coefficient (ICC) by Test and Trial - Team B

	Trial 1	Trial 2	Total
Placing	1.000	1.000	1.000
Turning	1.000	0.997	0.999
Displacing	1.000	1.000	1.000
One-Hand Turning and Placing	1.000	1.000	1.000
Two-Hand Turning and Placing	0.999	1.000	1.000

Table 3

Intrarater Reliability - Intraclass Correlation Coefficient (ICC) by Test

		95% Confidence Interval	
Test	Intraclass Correlation	Lower Bound	Upper Bound
Placing	0.912	0.879	0.936
Turning	0.858	0.808	0.896
Displacing	0.878	0.834	0.911
One Hand Turn and Place	0.864	0.816	0.901
Two Hand Turn and Place	0.824	0.762	0.870

Table 4

Participant Demographics

DISCUSSION

- For interrater reliability, absolute agreement between the raters was evaluated.
- Absolute agreement between two trials was determined insignificant due to the CMDT manual encouraging participants to complete the next trial faster.
- To determine intrarater reliability, consistency within the trials was evaluated.
- The sample size threshold of 33 participants per 3 raters (Group A = 25, Group B= 22) was not met for **interrater** reliability.
- The lower sample size was acceptable and provided significant data for interrater reliability due to the low variation amongst the raters.
- The sample size threshold was exceeded for **intrarater** reliability.

CONCLUSION

- **Excellent interrater reliability** with the ICC between 0.976 and 1.000.
- **Good intrarater reliability** with the ICC between 0.824 and 0.912 using a 95% confidence interval.
- Varying the sequence of the subtest administration appears to have effectively controlled for confounding factors such as practice and fatigue.
- We anticipate using the test procedures established in this study for a future normative study.

LIMITATIONS

- Participation may have been limited due to the amount of time it takes to administer all 5 subtests.
- Participants completed a practice trial and two additional trials however, more trials would further strengthen the data.

REFERENCES

IMAGE CAPTION:
(no table selected)
TITLE: ESTABLISHING INTERRATER AND INTRARATER RELIABILITY FOR THE COMPLETE MINNESOTA DEXTERITY TEST

CONTROL ID: 4118379
TITLE: A NOVEL, COMPREHENSIVE EVALUATION FOR PERIPHERAL NERVE DYSFUNCTION AS A CONSEQUENCE OF ELBOW AND FOREARM TRAUMA
AUTHORS (FIRST NAME INITIAL, LAST NAME): L. C. Rogers[1], S. Doerrer, M. Finley, S. Smith
INSTITUTIONS (ALL):
1. K Street, MedStar Health, Columbia, MD, United States.
ABSTRACT BODY:
Purpose: To investigate the effectiveness of the newly-developed Upper Extremity Peripheral Nerve Screen (UEPNS) in identifying and responding to early peripheral nerve injury in patients with complex elbow and forearm trauma.
Methods: This study is a prospective case series of 3 patients with complex elbow or forearm trauma screened with the UEPNS in conjunction with a standard orthopedic upper extremity evaluation, re-evaluation and discharge.
Results: With the use of the UEPNS, signs of a peripheral nerve injury were identified that led to treatment modificaitons to avoid further damage. All patients demonstrated improvements in range of motion, activities and participation in activities of daily living.
Conclusion: The effectiveness and practicality of the UEPNS to identify peripheral nerve injuries with elbow and forearm trauma is described. Treatment results for the 3 patients with elbow and forearm injuries screened with the UEPNS demonstrated benefit of early identification.
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TITLE: A NOVEL, COMPREHENSIVE EVALUATION FOR PERIPHERAL NERVE DYSFUNCTION AS A CONSEQUENCE OF ELBOW AND FOREARM TRAUMA

CONTROL ID: 4120283
TITLE: MEASURING ACTIVITY FOLLOWING FREE-FUNCTIONING MUSCLE TRANSFER FOR PAN-BRACHIAL PLEXUS INJURY: A CASE SERIES
AUTHORS (FIRST NAME INITIAL, LAST NAME): S. Brito[1], B. Hill[2], N. Thomacos[3]
INSTITUTIONS (ALL):
1. OS/OT, EKU, Richmond, KY, United States.
2. 2Epworth Monash Rehabilitation Medicine Unit, Epworth Hospital, Melbourne, VIC, Australia.
3. 3School of Health and Biomedical Sciences, RMIT University, Melbourne, VIC, Australia.
ABSTRACT BODY:
Purpose: Pan-brachial plexus injuries (pan-BPIs) result in severe upper limb impairment and permanent dysfunction. Little is understood about how reconstructive surgeries to restore arm movement impact arm use in day-to-day life. This study aims to report the outcomes of two activity measures to better understand how the restored arm is used in day-to-day life following pan-BPI.

The current study aims to (i) report activity outcomes for individuals following FFMT reconstructive surgery for management of a pan-BPI using two different patient-report outcome measures, and, (ii) to better understand how patients use the affected arm following reconstructive surgery.
Methods: A case series of individuals with a diagnosis of traumatic pan-BPI and underwent a first free-functioning muscle transfer surgery. Scores of the Brachial Assessment Tool (BrAT) and the Disability of the Arm, Shoulder and Hand (DASH) are compared using one-sample t-tests and descriptive analysis.
Results: This study consisted of eight males with a mean age of 43.5 (SD 11.67) years. Participants scored a mean of 44.17 (SD 16.29) on the DASH and 14.25 (SD 6.2) on the BrAT. When attributing responses to the affected limb using the BrAT, 75% of responses were ‘cannot’ perform an activity while 59% of the DASH responses indicated ‘no’ or ‘mild’ difficulty in performing an activity.
Conclusion: Further research needs to be conducted to fully understand what these measures assess in order to for health professionals to employ the most appropriate outcome measure and to better appreciate its relevance to patient recovery.
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TITLE: MEASURING ACTIVITY FOLLOWING FREE-FUNCTIONING MUSCLE TRANSFER FOR PAN-BRACHIAL PLEXUS INJURY: A CASE SERIES

CONTROL ID: 4121321
TITLE: CRITICALLY APPRAISED PAPER: “ROBOT- ASSISTED TRAINING AS SELF- TRAINING FOR UPPER LIMB HEMIPLEGIA IN CHRONIC STROKE: A RANDOMIZED CONTROLLED TRIAL”
AUTHORS (FIRST NAME INITIAL, LAST NAME): M. D'Imperio[1], S. Doerrer[1]
INSTITUTIONS (ALL):
1. OT, The George Washington University Department of Health Human Function and Rehabilitation Sciences, Washington, DC, United States.
ABSTRACT BODY:
Purpose: The research objective of this RCT is to examine whether robotic-assisted training (RT) could improve UE function and the use of the paretic UE during daily activities, as compared to conventional self-training methods in mild to moderate impairment hemiplegic chronic stroke patients. Level of evidence IB.

This study highlights that an intensive approach to rehabilitation in UE paralysis after stroke is less effective in the chronic phase (6 months post stroke), but that motor improvements can still occur. When focusing on improving motor impairmant, CIMT and standard occupational therapy can be considered equally effective approaches and can be combined with robotic self-training with no additional harm. Movement Therapy (MT) which included RT and constraint Induced Movement Therapy (CIMT) training was found to be more influential than the control regarding the frequency of UE use and was the only group to reach a minimally clinically important difference with the MAL-14 . These results can guide OTP’s by implementing CIMT for learned nonuse and opting not to use robotic therapy on a stand-alone basis due to lack of evidence and substantial cost. .
Methods: Participants were selected from 25 outpatient clinics in Japan. Inclusion criteria was between 20-80 years old, upper limb hemiparesis due to a stroke occurring at least 6 months ago, and undergoing rehabilitation to treat the UE. Also must have had a Fugl Meyer Assessment (FMA-UE) score greater than 44, upper limb function of 1b or higher on the Stroke Impairment Assessment Set, and a score of 2 or below on the Modified Ashworth Scale. Exclusion criteria was a diagnosis of multiple strokes, cerebellar/brain stem strokes, UE improvement without therapy, and extreme pain in affected UE. Also any neuromuscular diseases, balance/gait issues, aphasia, cognitive dysfunction and history of robot training, CIMT, or Botox.
This study has three groups, two intervention groups which consist of the robot-assisted training (RT), the movement therapy (MT) group, and the control group. Each group received 1 hour sessions 3 times a week, for 10 weeks. The RT group received 20 minutes of therapist-led standardized occupational therapy as well as 40 minutes of robot-assisted self-training using the ReoGo-J upper-limb rehabilitation device. The MT group received 40 minutes of robot-assisted self-training using the ReoGo-J device and 20 minutes of therapist-led Constraint Induced Movement Therapy (CIMT) training. The control group received 40 minutes of self-training and also received 20 minutes of therapist-led standardized occupational therapy which included joint range of motion exercises, ADLs, correct-movement exercises, and stretching.
There were 40 participants selected to be in each of the three intervention groups, before drop outs. There were various sites, each participant taking part of the intervention in the setting they were selected from.
Results: Primary Outcome Measure: FMA-UE which examines gain and loss of motor control in the affected limb. Items specifically related to the shoulder/elbow/forearm were additionally analyzed
Secondary Outcome Measures: The Modified Ashworth Scale was used to assess muscle tone. The Motor Activity Log (MAL-14) scale was used to measure the amount of use of the affected limb and the quality of movements. The Action Research Arm Test was used to measure upper limb function and the Motricity Index was used to assess muscle strength. The Stroke Impact Scale measured quality of life. These measurements were taken at baseline, after 5 weeks of treatment, and then after 10 weeks of treatment.

After 10 weeks of treatment there were no significant differences between primary and secondary outcome scores of the RT group and control group. After 10 weeks of treatment there were no significant differences between primary and secondary outcome scores of the RT group and MT group. There was a significant difference between the MT (0.67±0.11) and Control group (0.30±0.11, P =0.047) in the change of MAL-14, MT also met MCID requirements for meaningful change in this measure. No other differences occured between groups.

Conclusion: Training of research members was not described which could effect variability in outcome measurement. Participants and therapists were not blinded. The FMA-shoulder/elbow/forearm was not a valid and reliable tool since it included only specific items from the FMA-UE. Confounding variables such as age, time after stroke, degree of sensory and motor deficits could have impacted results.

This study did not yield statistically significant results in examining whether robotic training could improve UE function as compared to traditional OT in hemiplegic/hemiparetic chronic stroke patients. The use of robotics may not be the best solution for chronic stroke patients and future research is needed to identify an optimal therapy treatment for this population.
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TITLE: CRITICALLY APPRAISED PAPER: “ROBOT- ASSISTED TRAINING AS SELF- TRAINING FOR UPPER LIMB HEMIPLEGIA IN CHRONIC STROKE: A RANDOMIZED CONTROLLED TRIAL”

CONTROL ID: 4121656

TITLE: A SURVEY STUDY OF PRACTICE PATTERNS WITH PEDIATRIC HAND THERAPY PATIENTS

AUTHORS (FIRST NAME INITIAL, LAST NAME): M. G. Osborne[1], J. Dorich[2]

INSTITUTIONS (ALL):

1. College of Saint Mary, Omaha, NE, United States.
2. Cincinnati Children's Hospital, Cincinnati, OH, United States.

ABSTRACT BODY:

Purpose: Upper extremity impairment is common in children. Various acute and chronic upper extremity conditions lead to functional limitations warranting referral to hand therapy. Hand therapists' experiences treating pediatric patients remain unexplored. Thus, our study aims to gain preliminary insights into hand therapists' practice patterns treating pediatric patients.

Methods: A survey was designed to assess hand therapists' practice patterns treating pediatric patients. The following Likert scale was used for all questions: routinely (76% - 100%), often (51% - 75%), occasionally (26% - 50%), rarely (1% - 25%), and never (0%). The survey was distributed using an electronic REDCap link in an email invitation to all American Society of Hand Therapists members. Responses were analyzed with descriptive statistics. All data analysis was performed by one researcher who received routine oversight from a research mentor.

Results: The survey received 157 responses (5% response rate) with 135 records meeting inclusion criteria. Respondents were 26 to over 65 years old; 94% female (n = 125), 6% male (n = 8); 95% Occupational Therapists (n = 128) and 5% Physical Therapists (n = 7). All respondents (n = 135) indicated they primarily work in an outpatient facility, with 10% (n = 13) practicing in a pediatric specific facility. Overall, years of practice and years of experience treating pediatric patients varied (Figure 1) with more participants having fewer years of pediatric experience than overall years of experience practicing hand therapy. Fourteen percent of respondents (n = 19) reported treating pediatric patients (0 months - 17 years old) routinely/often, 77% (n = 104) reported treating pediatric patients occasionally/rarely, and 9% (n = 12) reported never treating pediatric patients. Among all respondents, 74% (n = 91) indicated the most comfort treating school-aged patients (6 - 17 years old), and 78% (n = 95) indicated the least comfort treating infants and toddlers (birth - 2 years old). Respondents reported routinely/often treating the following types of diagnoses: traumatic injuries, 82% (n = 111); overuse injuries, 81% (n = 110); systemic conditions, 60% (n = 81); neurological/neuromuscular conditions,15% (n = 20); and congenital anomalies, 9% (n = 12) (Figure 2a). Respondents who indicated they do treat pediatric patients (91%, n = 123), referred to hereafter as pediatric-practicing respondents, received additional questions about their pediatric practice. Pediatric-practicing respondents indicated routinely/often having comfort treating pediatric patients with the following types of diagnoses: traumatic injuries, 71% (n = 87); overuse injuries, 61% (n = 75); systemic conditions, 33% (n = 40); congenital anomalies, 25% (n = 31); neurological/neuromuscular conditions, 20% (n = 25) (Figure 2b). Regarding patient referrals, 16% (n = 20) of pediatric-practicing respondents routinely/often receive referrals to treat pediatric patients. Furthermore, among pediatric-practicing respondents, 54% (n = 67) routinely/often communicate with the referring provider and 63% (n = 77) have access to pediatric patients' medical records. Regarding clinical environment and resources, 34% (n = 42) of pediatric-practicing respondents routinely/often have a conducive environment for treating pediatric patients and 36% (n = 44) have access to adequate equipment for pediatric care. Regarding resources for providing pediatric hand therapy intervention, pediatric-practicing respondents are routinely/often able to: use tools for assessing body functions, 68% (n = 82); identify patient/family treatment priorities, 68% (n = 81); schedule appointments for the recommended frequency, 64% (n = 77); deliver child-focused intervention, 45% (n = 54); use patient/family education materials that align with pediatric patients, 26% (n = 31); and access standardized assessments for pediatric patients, 22% (n = 26). Finally, pediatric-practicing respondents routinely/often have access to the following types of resources to guide care of pediatric patients: research articles and evidence-based practice tools, 30% (n = 36); continuing education, 28%, (n = 34); reference books, 28% (n = 33); and mentorship, 18% (n = 21).

Conclusion: Among this sample of hand therapists, pediatric referrals are low. However, most therapists provide care to pediatric patients, reporting the greatest comfort with treating school-aged children with traumatic and overuse injuries. The current study reveals several opportunities for enhancing pediatric hand therapy care in the following areas: connections with referral sources, clinical environments, intervention resources, and professional development tools. Additionally, study findings highlight further research exploring therapists' experiences treating pediatric patients in greater depth is necessary to inform practice enhancements.

Purpose: Upper extremity impairment is common in children. Various acute and chronic upper extremity conditions lead to functional limitations warranting referral to hand therapy. Hand therapists' experiences treating pediatric patients remain unexplored. Thus, our study aims to gain preliminary insights into hand therapists' practice patterns treating pediatric patients.

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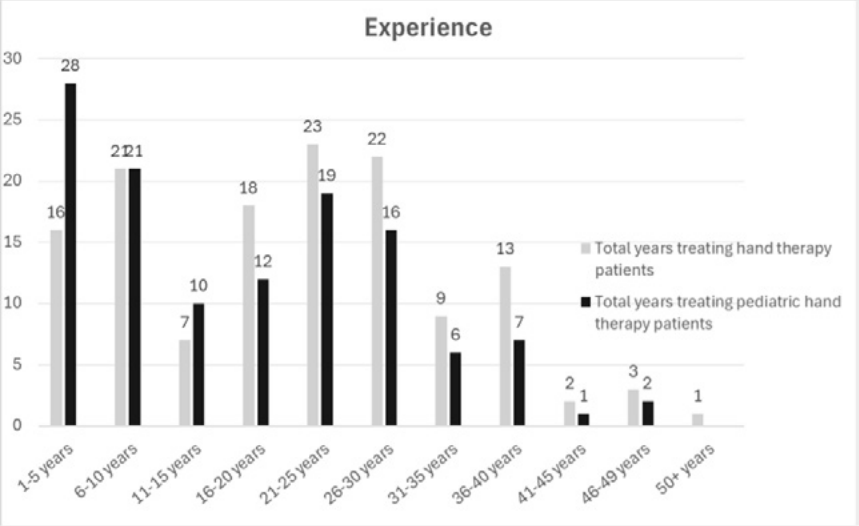
Experience
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Total years treating hand therapy patients
Total years treating pediatric hand therapy patients

Figure 2a

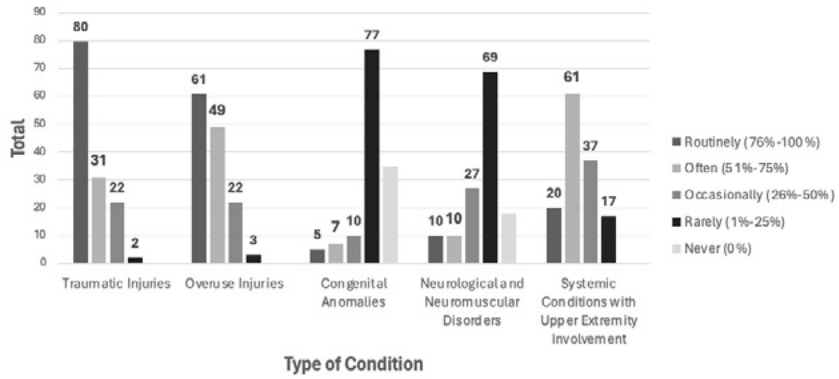

Figure 2b

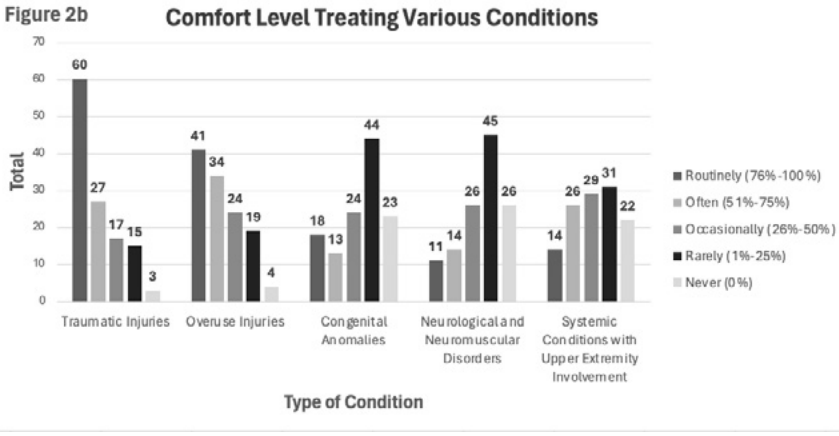

IMAGE CAPTION:
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TITLE: A SURVEY STUDY OF PRACTICE PATTERNS WITH PEDIATRIC HAND THERAPY PATIENTS

CONTROL ID: 4122317
TITLE: CRITICALLY APPRAISED PAPER: "MANAGEMENT OF STABLE PROXIMAL INTERPHALANGEAL JOINT VOLAR PLATE INJURIES WITH FIGURE-OF-8 ORTHOSES: A PARALLEL-GROUP RANDOMIZED CONTROLLED TRIAL"
AUTHORS (FIRST NAME INITIAL, LAST NAME): R. Metts[1], S. Doerrer[1]
INSTITUTIONS (ALL):
1. OT, The George Washington University Department of Health Human Function and Rehabilitation Sciences, Washington, DC, United States.
ABSTRACT BODY:
Purpose: The objective is to compare the effects of range of motion, pain, function, and amount of hand therapy appointments made between patients with figure-of-8 orthoses or dorsal blocking orthoses to manage volar plate injuries.This is a Level 1B, Parallel-group Randomized Controlled Trial.

Measurable outcomes found no significant differences in finding one orthosis better than the other, showing efficient evidence for using both. Earlier extension, improved function scores, and fewer appointments scheduled were some benefits of using the figure-of-8 orthosis. Further research should be conducted to explore different types of orthoses. While there are some limitations, this study tells clinicians they have an option in choices for orthoses.
Methods: Participants were recruited from a major regional Australian hospital in an outpatient clinic. Inclusion criteria included 1) have a stable volar plate injury to the PIP joint of the finger, 2) were between the ages of 13-65 years, and 3) have completed assessments with an OT or physiotherapist who has experience managing volar plate injuries within 2 weeks of the injury. No exclusion criteria are listed.

Group 1: For 12 weeks, 20 participants (n=20) were allocated to a therapist using typical referral processes at a hand clinic in Australia. Participants in the intervention group received a customized thermoplastic figure-of-8 orthosis placed in 30 degrees. They were placed in 15-20 degrees up until the 4-week appointment while being instructed not to remove the orthosis at all times. Participants were instructed to do daily active and passive range of motion exercises for each joint in the finger and received education on their injuries.

Group 2: For 12 weeks, 22 participants (n=22) were allocated to a therapist using typical referral processes at a hand clinic in Australia. The control group received a customized dorsal blocking orthosis. This orthosis started at 30 degrees PIP flexion and was progressively adjusted by 10 degrees until a neutral position was reached. They were instructed not to remove the orthosis. Participants were instructed to do daily active and passive range of motion exercises for each joint in the finger and received education on their injuries.
Results: All outcome measures were assessed at baseline, and 4, 7, and 12 weeks after the initial assessment. A goniometer measured the finger's range of motion with a Roylan goniometer on the dorsal side of the affected finger. Pain measurements were taken subjectively utilizing a visual analog scale (VAS), with 1 as the lowest pain and 10 as the highest pain reported. The Quick Disabilities of the Arm, Shoulder, and Hand (QuickDASH) measured function. This outcome measure is reported to be valid and reliable.

Repeated Measures ANOVA found no significant effects for group-by-time interactions concerning PIP flexion, distal interphalangeal (DIP) flexion, DIP extension, pain, and QuickDASH scores in either group. The group-by-time interaction for PIP extension was found to be significant at $p = 0.03$ in the intervention group. When examining effects between time points, there was a significant change in QuickDASH scores between time points 3 and 4 in the intervention group. There were no between-group differences found at the end time point.
Time had significant effects on PIP flexion, DIP flexion, pain, and QuickDASH scores which shows a change from baseline to follow-up in both groups. The number of appointments scheduled between groups was found to be significantly different ($p< 0.001$). The intervention group scheduled an average of 4 (±1.5) and the control group scheduled an average of 6 (±1.5) over 12 weeks.
Conclusion: A small sample size of 42 from one clinic caused effects to be insufficiently powered and lower generalizability. The study does not mention how compliance was measured with wearing the orthoses or daily exercises. Measurement bias is possible as therapists were not blinded to which group the participant was allocated

to. Treating therapists also collected the measurements, influencing evaluation and favorment. There was a short follow-up period as no further assessments were done past 12 weeks. Co-interventions possibly occurred, such as taking anti-inflammatories or modalities that would affect outcome measures. This study has internal threats (maturation, instrumentation) and external threats (history – COVID-19, sampling bias, and setting influence).

The authors concluded that there were similar outcomes after 12 weeks between a dorsal block and figure-of-8 orthoses regarding range of movement, pain, and function. The use of these orthoses in maximal comfortable extension could lower the number of appointments scheduled while increasing convenience for patients as well. To examine the outcomes of other types of orthoses and initial PIP positioning, further research on a larger scale is required.
Purpose: The objective is to compare the effects of range of motion, pain, function, and amount of hand therapy appointments made between patients with figure-of-8 orthoses or dorsal blocking orthoses to manage volar plate injuries.This is a Level 1B, Parallel-group Randomized Controlled Trial.

Measurable outcomes found no significant differences in finding one orthosis better than the other, showing efficient evidence for using both. Earlier extension, improved function scores, and fewer appointments scheduled were some benefits of using the figure-of-8 orthosis. Further research should be conducted to explore different types of orthoses. While there are some limitations, this study tells clinicians they have an option in choices for orthoses.
Methods: Participants were recruited from a major regional Australian hospital in an outpatient clinic. Inclusion criteria included 1) have a stable volar plate injury to the PIP joint of the finger, 2) were between the ages of 13-65 years, and 3) have completed assessments with an OT or physiotherapist who has experience managing volar plate injuries within 2 weeks of the injury. No exclusion criteria are listed.

Group 1: For 12 weeks, 20 participants (n=20) were allocated to a therapist using typical referral processes at a hand clinic in Australia. Participants in the intervention group received a customized thermoplastic figure-of-8 orthosis placed in 30 degrees. They were placed in 15-20 degrees up until the 4-week appointment while being instructed not to remove the orthosis at all times. Participants were instructed to do daily active and passive range of motion exercises for each joint in the finger and received education on their injuries.

Group 2: For 12 weeks, 22 participants (n=22) were allocated to a therapist using typical referral processes at a hand clinic in Australia. The control group received a customized dorsal blocking orthosis. This orthosis started at 30 degrees PIP flexion and was progressively adjusted by 10 degrees until a neutral position was reached. They were instructed not to remove the orthosis. Participants were instructed to do daily active and passive range of motion exercises for each joint in the finger and received education on their injuries.
Results: All outcome measures were assessed at baseline, and 4, 7, and 12 weeks after the initial assessment. A goniometer measured the finger's range of motion with a Roylan goniometer on the dorsal side of the affected finger. Pain measurements were taken subjectively utilizing a visual analog scale (VAS), with 1 as the lowest pain and 10 as the highest pain reported. The Quick Disabilities of the Arm, Shoulder, and Hand (QuickDASH) measured function. This outcome measure is reported to be valid and reliable.

Repeated Measures ANOVA found no significant effects for group-by-time interactions concerning PIP flexion, distal interphalangeal (DIP) flexion, DIP extension, pain, and QuickDASH scores in either group. The group-by-time interaction for PIP extension was found to be significant at $p = 0.03$ in the intervention group. When examining effects between time points, there was a significant change in QuickDASH scores between time points 3 and 4 in the intervention group. There were no between-group differences found at the end time point.
Time had significant effects on PIP flexion, DIP flexion, pain, and QuickDASH scores which shows a change from baseline to follow-up in both groups. The number of appointments scheduled between groups was found to be significantly different ($p< 0.001$). The intervention group scheduled an average of 4 (±1.5) and the control group scheduled an average of 6 (±1.5) over 12 weeks.
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TITLE: CRITICALLY APPRAISED PAPER: "MANAGEMENT OF STABLE PROXIMAL INTERPHALANGEAL JOINT VOLAR PLATE INJURIES WITH FIGURE-OF-8 ORTHOSES: A PARALLEL-GROUP RANDOMIZED CONTROLLED TRIAL"

CONTROL ID: 4122336
TITLE: CRITICALLY APPRAISED PAPER: "PHYSICAL EXERCISE AND OCCUPATIONAL THERAPY AT HOME TO IMPROVE THE QUALITY OF
LIFE IN SUBJECTS AFFECTED BY RHEUMATOID ARTHRITIS: A RANDOMIZED CONTROLLED TRIAL"
AUTHORS (FIRST NAME INITIAL, LAST NAME): E. Jernigan[1], L. Rogers[1]
INSTITUTIONS (ALL):
1. George Washington University, Washington DC, WA, United States.
ABSTRACT BODY:
Purpose: The objective of this randomized controlled trial was to evaluate the quality of life in patients with rheumatoid arthritis (RA) after a 30-day period of consistent physical exercise and occupational therapy (OT) interventions performed at home. This study is categorized as a level 1B.

The study emphasizes the importance of occupational therapy (OT) guidance in enhancing the quality of life for outpatients with rheumatoid arthritis (RA). Through a 30 day at-home program of joint economy (combining physical exercise and OT interventions), results noted significant improvements in patient engagement of daily activities. Joint economy guidance was delivered by an occupational therapist, encouraging patients to effectively manage their RA symptoms within their own environment. The study suggests OTs can provide direction and personalized intervention plans to address the unique needs of RA patients to promote self-efficacy and overall quality of life. The study states further research is needed to explore long-term effectiveness.
Methods: This study was carried out at the Internal Medicine Department of ARNAS Civico-DI Cristina-Benfratelli Hospital in Palermo, Italy. There were 86 females and 74 males who enrolled, for a total of 160 outpatients with rheumatoid arthritis who were originally receiving care at the Rheumatologic Healthcare ambulatory in 2023. The exclusion criteria consisted of being younger than 18 years old, refusing informed consent, having deformations of joints that prevent physical exercise, and being severely anemic. The inclusion criteria consisted of a diagnosis of RA, being at least 18 years-old or older, and providing informed consent.
Randomization was computer generated with 80 participants in each group.
Intervention Group:
Participants were provided a brochure containing information on rheumatoid arthritis, joint economy techniques, and detailed instructions for the exercises, which were to be performed at home. An OT and kinesiologist provided initial instructions and guidance for performing joint economy techniques. Exercises included flexing and extending of various joints, such as the ankle, knee, cox-femoris, elbow, wrist, and shoulder. Specific OT techniques were focused on the correct positioning of hands, body balance, and joint protection strategies during daily activities. Participants were to perform 20 to 30 minutes each day, six days a week, with one rest day, for a total of 30 days.
Control Group:
These participants were given the same brochure as the intervention group. The group was to continue with their daily activities and medical treatments from healthcare providers, but no additional interventions were given for the 30 days.
Results: Outcome measures were performed pre and post intervention and included:
Health Assessment Questionnaire (HAQ): Measures physical disabilities. The measurement is based on the ability to perform activities such as dressing, grooming, walking, and hygiene.
Short-Form Health Survey (SF-12) - Italian Version: Measures physical health, bodily pain, general health, vitality, social functioning, and role limitations, based on emotional and mental health.
Disease Activity Score (DAS 28): Measures the presence of synovitis within 28 joints. Both C-reactive protein (CRP) (DAS28crp) and erythrocyte sedimentation rate (ESR) (DAS28esr) are used to measure RA activity.

Significant improvements were found in outcomes from joint economy intervention for patients with RA. Enhancements in Disease Activity Score (DAS28) for both the Erythrocyte Sedimentation Rate (ESR) and C-Reactive Protein (CRP), with statistical significance at ($p = 0.005$ and $p = 0.004$, respectively). The Health Assessment Questionnaire (HAQ) scores showed significant enhancement ($p = 0.009$), as well as improvements in the SF-12 Mental Component Score ($p = 0.010$). The study analyzed the results using Fisher's exact test, z-test, Mann-Whitney U test, and Wilcoxon signed-rank test.

Conclusion: Limitations included participant drop out not addressed, compliance of performing the exercises at home was not measured, and there was no follow-up post intervention.

The study solidified that self-management increases self-efficacy, improving individuals' independence and overall quality of life. It is critical that patients are performing physical exercises correctly to produce greater results in the management of their rheumatoid arthritis symptoms. To
ensure the performance of exercises, it is important to have an occupational therapist that is available for educational purposes and support. Lastly, the authors believe further research is needed to reinforce these findings.
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CONTROL ID: 4122478

TITLE: IS THE SQUEGG™ DIGITAL GRIP DEVICE MORE RELIABLE THAN THE ADAPTED SPHYGMOMANOMETER? A CLINICAL MEASUREMENT STUDY.

AUTHORS (FIRST NAME INITIAL, LAST NAME): M. Roque[3], J. Herrington[2], D. Southmayd[2], M. Batthish[2], E. Xiao[3], T. Packham[1]

INSTITUTIONS (ALL):

1. School of Rehabilitation Science, McMaster University, Hamilton, ON, Canada.
2. Pediatrics, Hamilton Health Sciences, Hamilton, ON, Canada.
3. McMaster University, Hamilton, ON, Canada.

ABSTRACT BODY:

Purpose: Grip strength is an important outcome measurement in pediatric rheumatology settings. In our children's hospital outpatient service, therapists have chosen to use an adapted sphygmomanometer for testing instead of the 'gold standard' hydraulic dynamometer because of concerns with the size, weight, and resulting comfort for using this equipment. However, the adapted sphygmomanometer has been criticized for potentially low reliability and difficulties in obtaining the analog equipment with the proliferation of digital blood pressure measurement devices. The Squegg™ digital grip device represents a new option for measurement that may address these concerns, but it has not been tested with this clinical population.

We are undertaking testing of grip strength in children attending a pediatric outpatient rheumatology service to compare the reliability the adapted sphygmomanometer (AdSphyg) and Squegg™ across a spectrum of ages and hand sizes.

Our primary research question is what is the test-retest reliability of the Squegg™ and how does it compare to the adapted sphygmomanometer in children with musculoskeletal health concerns? Secondary questions will explore the influence of age, hand size and dominance on average grip strength values, and any differences in comfort using the two devices.

Methods: We are recruiting children attending an outpatient pediatric rheumatology clinic, where grip strength would be tested as part of routine care. After giving informed assent or [parental] consent, participants meeting our inclusion criteria of no active disease in the hands or wrists are asked to perform maximal grip strength testing. We follow a standardized testing protocol for positioning and 3 trials; and random selection of the start device (a new AdSphyg or new Squegg™). Both hands are tested, with rest periods in between trials. Participants also provide ratings of comfort for performing maximum gripping, and state if they prefer being able to see the score in real time (only possible with the Squegg™). The sphygmomanometer was adapted using published instructions, with the included nylon carry-case fabric used to create the pouch, allowing easy cleaning between participants. Descriptive statistics, t-tests, Pearson's correlations and intraclass correlations (ICCs) were calculated to address our research questions. We hypothesized that results from both tools would have similar moderate positive correlations (0.6 -0.8) to age and hand size.

Results: This is an interim analysis of 33 participants of a planned sample size of 50; we will update analyses to share the final results. Average age was 11.6 years (range 5-17) and female predominance (64%); the majority were right-handed (88%) and had a diagnosis of juvenile idiopathic arthritis (55%). Ceiling effects were seen on 12 participants, where their strength exceeded the measurement capacity of the AdSphyg.

Test-retest reliability across the 3 trials for both hands was excellent for any individual measure with ICC(2,1) evaluating absolute agreement = 0.96 [95%CI 0.94-0.97] for the Squegg™ and 0.98 [95%CI 0.97-0.99] for the AdSphyg, based on 198 discrete measurements. However, if only measures without a ceiling effect were included (n=115) then ICC(2,1) for the AdSphyg = 0.95 [95%CI 0.91-0.97] for any individual measure. Standard error of measurement was 4.68 kgs for the Squegg™ and 15.8 mmHg for the AdSphyg (excluding ceiling values). Average pain ratings (comfort) during grip testing were 2.1/10 for Squegg™ and 2.3/10 for AdSphyg but did not differ statistically (p=0.75). 97% of participants preferred to see their performance, with one child reporting no preference. Age and hand size were moderately correlated to strength across both tools (e.g. r=0.68 for age & mean grip on Squegg™ vs. r=0.63 for age & mean grip on AdSphyg).

Conclusion: Grip strength measures taken with both Squegg™ and an adapted sphygmomanometer demonstrate excellent test-retest reliability in a single session using new equipment in children with musculoskeletal diagnoses. However, the extent of ceiling effects seen illustrate an important limitation of the AdSphyg. More research is needed before using either of these tools in multi-centre research as there is a gap in comparing the reliability of different

tools, and the responsiveness of grip strength as an outcome measure. The impact of loss of calibration over time on reliability is also understudied. Importantly, children with musculoskeletal conditions generally did not find it more painful to exert maximum effort using Squegg™ than using the AdSphyg. While our correlation analyses reflected our predictions, they may be unstable estimates given the small sample size.

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CONTROL ID: 4122623
TITLE: WHAT DO PATIENTS WITH TRAUMATIC BRACHIAL PLEXUS INJURIES NEED FOR SOCIAL AND EMOTIONAL SUPPORT? A QUALITATIVE ANALYSIS.
AUTHORS (FIRST NAME INITIAL, LAST NAME): A. Faust[1], E. Sane[1], M. Stonner[2], D. Brogan[1], C. Dy[1]
INSTITUTIONS (ALL):
1. Orthopedics, Washington University in St. Louis, St. Louis, MO, United States.
2. Occupational Therapy, Washington University in St. Louis, St. Louis, MO, United States.
ABSTRACT BODY:
Purpose: Patients with brachial plexus injuries face clinical outcomes that are complex and life altering. This project aims to qualify potential areas of improvement in post-surgical care of brachial plexus injury patients, specifically from a social and emotional perspective. We also investigate patient perspectives and the potential utility of a new patient-facing role called a Navigator who can facilitate these improvements.
Methods: We conducted semi-structured interviews with 25 brachial plexus patients after reconstruction. The interview guide was primarily focused on interactions with members of the care team throughout their recovery. Both inductive and deductive thematic analysis were used to identify recurring topics and ideas across patient experiences.
Results: Our study revealed four primary themes. 1) Patient perception of family and household responsibilities influences the desire for additional support from the care team. 2) The navigator role would include a variety of tasks that address recurring challenges reported by BPI patients, including family education and coordination of appointments, transportation, and insurance. Patients also expressed that it would be beneficial for the navigator to have experience with a BPI themselves. 3) Patient and family education should emphasize the understanding of neuropathic pain, timeline of healing, and expected new roles. 4) A potential solution to patient isolation may involve shared experiences with current BPI patients.
Conclusion: Patients with brachial plexus injuries have unique needs for support from both their care team and family. There are variations in desired level of support, as some patients expressed adequate levels of support from their care team and family while some desired more.

Accurately identifying patients who would benefit from additional support would be an effective use of healthcare resources rather than a standardized approach where all patients receive the same level of additional supportive services. These services include appointment coordination, navigating insurance, disability programs, family education, and accessing resources such as mental health services and physical or occupational therapy.

For patients with family support, formal education on understanding neuropathic pain, realistic expectations, timelines for recovery, and lifestyle modifications may facilitate the learning process after a BPI, enabling patients to feel more understood by their family and friends.

Building a strong and reliable community of BPI patients could improve social well-being in many patients, as some patients expressed a desire to guide other patients through their journey (and that they wish someone had done this for them).
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Participant #	Sex	Age	Race/ethnicity	Time since surgery
NAV-001	M	55	White, Non-Hispanic	4.58 years
NAV-002	M	43	White, Non-Hispanic	17 months
NAV-004	M	50	White, Non-Hispanic	4.75 years
NAV-007	M	56	White, Non-Hispanic	4.5 years
NAV-010	M	26	White, Non-Hispanic	3.8 years
NAV-011	M	39	Black, Non-Hispanic	3.2 years
NAV-012	M	24	Black, Non-Hispanic	3 years
NAV-013	M	47	White, Non-Hispanic	2.75 years
NAV-014	M	40	Black, Non-Hispanic	2.75 years
NAV-016	M	41	Black, Non-Hispanic	28 months
NAV-018	M	30	White, Non-Hispanic	24 months
NAV-024	M	48	White, Non-Hispanic	18 months
NAV-025	M	59	White, Non-Hispanic	13 months
NAV-027	M	38	White, Non-Hispanic	12 months
NAV-030	M	47	Black, Non-Hispanic	14 months
NAV-032	M	23	White, Non-Hispanic	14 months
NAV-034	M	33	White, Non-Hispanic	13 months
NAV-038	M	75	White, Non-Hispanic	11 months
NAV-039	M	63	White, Non-Hispanic	11 months
NAV-041	M	75	White, Non-Hispanic	8 months
NAV-042	M	65	White, Non-Hispanic	9 months
NAV-045	M	42	Black, Non-Hispanic	6 months
NAV-047	M	45	Black, Non-Hispanic	7 months
NAV-048	M	73	Black, Non-Hispanic	8 months
NAV-049	F	71	Black, Non-Hispanic	8 months
NAV-051	M	25	White, Non-Hispanic	5 months
NAV-055	M	49	White, Non-Hispanic	2 months
NAV-060	M	65	White, Non-Hispanic	1 months

Patient List & Demographics

IMAGE CAPTION: Patient List & Demographics

TABLE:

Note: The PDF table below is only an approximation of the HTML content and may not match formatting exactly.

Potential Navigator Roles	
Coordinating appointments	"Yeah, if I could really get some help with getting some physical therapy, getting to the physical therapy and just figuring out things I need to do, so like to strengthen just my arm and my hand." "If I had a care coordinator, I probably would've went to them for when I missed that pain management meeting and been like, "Yo. I'm really sorry I missed that, but I need to reschedule or whatever." I probably would've done that"
Providing education about the injury, surgery, and expectations	"I think a coordinator, if they could explain what to expect or anticipate would probably be the most positive thing… [to] ease the mind of an individual" "Is this something normal that, numbness in my whole arm? Is this a normal situation when you have a shoulder replacement? I just didn't have answers for that. Someone, like you say, a middleman, or woman, would just help me a little bit understand what is going on." "[Surgeons] have a certain amount of time, and I'm not one to constantly ask questions about certain things. I take it for granted that they know what they're talking about and that I understand what they're talking about. So, you know, a lot of times, after I visit a doctor, I had questions afterwards and thats when that [navigator] would have helped"
Connecting with outside resources	"Somebody could reach out for therapy… and having that navigator, the care coordinator, have resources to give to patients if they need it." "It would've been so much easier and

	helpful. Even a counselor would've been helpful. But, my daughter she works in healthcare and so she did a very good job she was there for me. But would have been really good even to have a counselor cause you feel like 'I can't keep going like this, I cant."
Helping with insurance	"Only if [the Navigator] is allowed to do the workman's comp. If they can't see me in the workman's comp world, it doesn't matter if you have one-stop shopping or a committee. That doesn't matter. They have to be able to reach into the workman's comp world right away." "It was hard finding therapy that took my type of insurance at the time. I've gotten in a lot of trouble with that. I was doing mostly home therapies"
Identifying solutions to functional challenges	"But really, like, a list of tricks for people that deal with loss of an extremity or something like that and how to do things, you know? … I mean, there is tricks to just putting your shirt on and if somebody can help bring those to light earlier, it would probably save a lot of frustration"
Communicating with the clinical team	"[The Navigator] could get in touch with the doctor instead of us having to wait for the doctor to have a little downtime to respond. I think that would help that if the point person could do that" "I guess to the mind it would feel more like psychologically soothing because... it would be more like physically talking to someone to get to the doctors to get the response that I need"
Assisting with technology	"This individual needs to be good on technology because that's not only gonna help that person, help the doctors, but help the individual and the individual's friends and family that's helping them."

	"I'm tech savvy, and there's people that aren't tech savvy. And I couldn't and didn't want to look up all that information about getting in contact with people that specialize in certain things. So, if there was someone that knew how to do that, that would be helpful, for sure."

TABLE FOOTER:
TABLE TITLE: Potential Navigator Roles
TITLE: WHAT DO PATIENTS WITH TRAUMATIC BRACHIAL PLEXUS INJURIES NEED FOR SOCIAL AND EMOTIONAL SUPPORT? A QUALITATIVE ANALYSIS.

CONTROL ID: 4122636

TITLE: TEST-RETEST RELIABILITY AND PRECISION OF THE INTERMETACARPAL DISTANCE METHOD IN PERSONS WITH THUMB OSTEOARTHRITIS

AUTHORS (FIRST NAME INITIAL, LAST NAME): K. Dischinger[1], C. W. McGee[1]

INSTITUTIONS (ALL):

1. Occupational Therapy, University of Minnesota, Saint Paul, MN, United States.

ABSTRACT BODY:

Purpose: Restoring the thumb webspace is often a priority in hand therapy for persons with thumb carpometacarpal (CMC1) osteoarthritis (OA). Various measures of palmar abduction are available to assess the resolution of this adduction contracture. Goniometry is reported to be the most commonly used measure of CMC1 palmar abduction yet has been shown to have low reliability in healthy adults and persons with CMC1 OA. The intermetacarpal distance (IMD) method involves assessing the distance (in mm) between the 1st and 2nd metacarpal head. It is the most reliable measure of CMC1 palmar abduction in individuals with healthy hands and has excellent inter-rater reliability in persons with CMC1 OA. However, its test-retest reliability has not yet been established in this clinical population. Therefore, the purpose of this study was to determine the test-retest reliability and precision of the IMD method for measuring palmar abduction in persons with CMC1 OA.

Methods: Two raters, one being a CHT with 24 years of experience and the second being an entry-level occupational therapist with less than 1 year of hand therapy experience, utilized the IMD method to measure palmar abduction in the affected hands of 27 subjects (39 thumbs) with radiographically confirmed CMC1 OA on two separate occasions approximately 2 weeks apart. The decision to use two IMD raters with differing experience levels is supported by recently published literature on the IMD method's inter-rater reliability. To characterize the sample, information on participants' demographics, hand dominance, pain (numerical rating scale), and self-reported disability (Thumb Disability Exam) were collected. Descriptive statistics were employed to summarize the sample's characteristics. Finally, the Intraclass correlation coefficient (ICC) was used to assess test-retest reliability, and the standard error of measurement (SEM), minimal detectable change (MDC), and MDC percent were used to assess precision.

Results: Participants were predominantly female, white, non-Hispanic, and right-hand dominant (Table 1). ICC values for palmar abduction all exceeded .90 indicating excellent reliability. SEM values were less than .7 mm, MDC values were 1.6 mm or less and MDC percent values were 4.4% or less indicating excellent precision (Table 2).

Conclusion: The IMD has excellent test-retest reliability and precision when used to measure palmar abduction in persons with CMC1 OA. For therapists to be highly confident that palmar abduction has improved in response to hand therapy, it should exceed 1.24 mm. Our results further support using the IMD for quantifying CMC1 palmar abduction in persons with CMC1 OA.

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TABLE:
Note: The PDF table below is only an approximation of the HTML content and may not match formatting exactly.

Table 1. Demographic characteristics of the sample (n=27)†	
Category	All Participants
Age in years, M (SD)	64.0 (8.9)
Sex Female Male	n (%) 19 (70.4) 8 (29.6)
Racial Background White American Indian or Alaska Native Multiracial	n (%) 25 (92.6) 1 (3.7) 1 (3.7)
Ethnicity Non-Hispanic Hispanic	n (%) 25 (92.9) 2 (7.4)
Dominant Hand Right Left	n (%) 22 (81.5) 5 (18.5)
Thumb(s) affected Total Thumbs Right only Left only Bilateral	n (%) 39 9 (33.3) 6 (22.2) 12 (44.5)
Thumb Disability Examination Scores Total Score Function Subscale Pain Subscale Satisfaction Subscale	M (SD) 31.2 (14.0) 23 (10.1) 18.5 (13.6) 27.2 (23.2)
Pain Numerical Rating, M (SD)	2.2 (1.9)

Time between sessions in Days, M (SD)	11.3 (4.3)
†Note: n = number of participants % = percent of participants; M = mean, SD = standard deviation of the mean.	

Table 2. Test-Retest Reliability and Precision of the Intermetacarpal Distance Method: Descriptive Data, Intraclass Correlation Coefficients (ICC), Standard Error of Measurement (SEM), and Minimal Detectable Change (MDC90).

Hands Tested	Time 1 M (SD)	Time 2 M (SD)	ICC (95% CI)	SEM (SEM%)	MDC90 (MDC%)
All (n = 39)	63.87 (7.85)	64.09 (8.00)	0.93 (.88-.96)	0.53 (1.41)	1.24 (3.29)
Right (n = 21)	66.08 (7.86)	65.97 (7.66)	0.91 (.80-.96)	0.69 (1.90)	1.61 (4.41)
Left (n = 18)	61.28 (7.20)	61.90 (8.02)	0.95 (.87-.98)	0.39 (0.91)	0.91 (3.30)

†M=Mean, SD = Standard Deviation, 95% CI = 95 percent confidence interval, SEM= SD*SQRT(1-ICC). MDC90=SEM*1.645*SQRT(2), MDC%= (MDC/Range of IMD values for session 1) * 100. Means, standard deviations, SEM, and MDC are reported in millimeters.

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TITLE: TEST-RETEST RELIABILITY AND PRECISION OF THE INTERMETACARPAL DISTANCE METHOD IN PERSONS WITH THUMB OSTEOARTHRITIS

CONTROL ID: 4122664

TITLE: ARE WE MISSING THE MARK? PATIENT-REPORTED EFFICACY AND UTILIZATION OF NON-PHARMACOLOGICAL TREATMENT FOR PHANTOM LIMB PAIN

AUTHORS (FIRST NAME INITIAL, LAST NAME): M. H. Siebert[1], R. Serbin[2], J. T. Frix[2], B. Loeffler, MD[1], G. Gaston, MD[1]

INSTITUTIONS (ALL):

1. Hand Center , OrthoCarolina, Charlotte, NC, United States.
2. Atrium Health Musculoskeletal Institute, Charlotte, NC, United States.

ABSTRACT BODY:

Purpose: Phantom limb pain (PLP) is a debilitating condition affecting many individuals with amputations. Despite available treatments, inadequate pain relief and functional limitations persist. This study aimed to characterize phantom limb experiences, treatment utilization, and perceived efficacy, with a focus on non-surgical and non-pharmacological approaches.

Methods: A cross-sectional survey was conducted among 86 individuals with major extremity amputations in the United States. The survey assessed phantom limb sensation characteristics, pain intensity and frequency, postural changes, telescoping, treatment utilization, and perceived efficacy.

Results: Nearly all participants (98.84%, n=85) reported phantom limb sensations, with tingling, pain, and throbbing being the most common. Among non-pharmacological treatments, graded motor imagery (GMI) and virtual reality/augmented reality (VR/AR) demonstrated promising perceived efficacy (median 5, IQR 3-7.5 and median 5, IQR 4-6, respectively) despite lower utilization rates (24%, n=16 and 3%, n=2, respectively). Other non-pharmacological approaches, such as mirror therapy (31% utilization, n=21; median efficacy 3, IQR 1-5), rest/distraction (50%, n=34; median efficacy 3.5, IQR 2-6), and heat (43%, n=29; median efficacy 4, IQR 2-7), were more commonly used but had lower perceived efficacy. On average, participants tried 4.1 (SD=3.2) non-pharmacological treatments.

Conclusion: This study highlights the potential of non-pharmacological interventions, particularly GMI and VR/AR, in the management of PLP. The low utilization rates of these promising approaches present an opportunity for occupational therapists to increase access and incorporate these techniques into comprehensive, patient-centered treatment plans. By staying informed about the latest advancements in PLP management and collaborating with other healthcare professionals, occupational therapists can play a crucial role in improving outcomes and quality of life for individuals with major extremity amputations.

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TITLE: ARE WE MISSING THE MARK? PATIENT-REPORTED EFFICACY AND UTILIZATION OF NON-PHARMACOLOGICAL TREATMENT FOR PHANTOM LIMB PAIN

CONTROL ID: 4122678
TITLE: CONCEPTUALIZING COLD INTOLERANCE: A CONCEPT ANALYSIS
AUTHORS (FIRST NAME INITIAL, LAST NAME): A. Jones[1], L. Bissonette[1], T. Packham[1]
INSTITUTIONS (ALL):
1. School of Rehabilitation Science, McMaster University, Hamilton, ON, Canada.
ABSTRACT BODY:
Purpose: Cold intolerance is a common sequela after hand injury. The experience of cold intolerance may include colour changes, pain, sensory changes, stiffness, and difficulty in rewarming after cold exposure. Despite being a common experience, there is variability in the presentation and no explicit diagnostic criteria. In practice, it may be difficult to distinguish from vasospastic disorders and cold allodynia as a feature of persistent pain. We hypothesize mapping the construct of cold intolerance in the context of hand surgery and rehabilitation can inform assessment and treatment recommendations and assist in identifying research gaps. Our guiding questions are a) how is the concept of cold intolerance described and operationalized in the hand therapy and hand surgery literature? b) What are the characteristics, features and gaps of the literature describing cold intolerance after hand injury or surgery?
Methods: We are conducting a concept analysis of cold intolerance after hand injury. In conjunction with a health librarian, we developed a search strategy based on the keywords of cold intolerance, cold sensitivity, and cold hypersensitivity and limited it to the anatomic region of the fingers and hand. We ran this search in Medline/PubMed, Embase, and CINAHL. We included papers using any study design, with an English abstract, from any time period, with a focus on human subjects with an upper extremity injury experiencing post-traumatic symptoms in their hand or digits. We excluded papers where there is a single use of one of the key terms without any description. Abstracts and full text were reviewed by 2 independent reviewers for inclusion and reported using a PRISMA diagram. Eighty-seven articles were selected to undergo data extraction using a standardized form informed by Rodger's evolutionary concept analysis process. We are extracting concept [cold intolerance] attributes, consequences, mechanisms, antecedents, temporal factors, surrogate terms, measures, and interventions; as well as study characteristics and author disciplines. We will synthesize the data using qualitative content description to formulate a clear conceptualization of cold intolerance, contrasting the term in surgical and rehabilitation contexts.
Results: We will describe the current state of the literature and how it delineates the concept of cold intolerance, identifying gaps, discrepancies and uncertainties. During ongoing data extraction, there are common themes currently emerging. It is apparent that the conceptualization of cold intolerance has largely been influenced by the field of hand surgery. A large proportion of literature contributing to the advancement of the concept of cold intolerance is based in colder geographical origins, and study populations with greater male to female ratios. Additionally, several early definitions and attributes of the concept appear to be widely accepted and continue to be referenced in current literature. Further synthesis aims to develop additional thematic strands describing cold intolerance, including accepted/understood physiological mechanisms, temporal factors, measurement tools, consequences, and treatment recommendations. We will discuss the implications of these findings for assessment, education and intervention in hand therapy and hand surgery research and practice.
Conclusion: Clarifying the concept of cold intolerance can assist in advancing research and care of persons after hand injury. Without a clear understanding of this phenomenon, the burden of this sequelae of traumatic injury can not be ascertained to justify resources to address research and service gaps, limiting innovation and supports.
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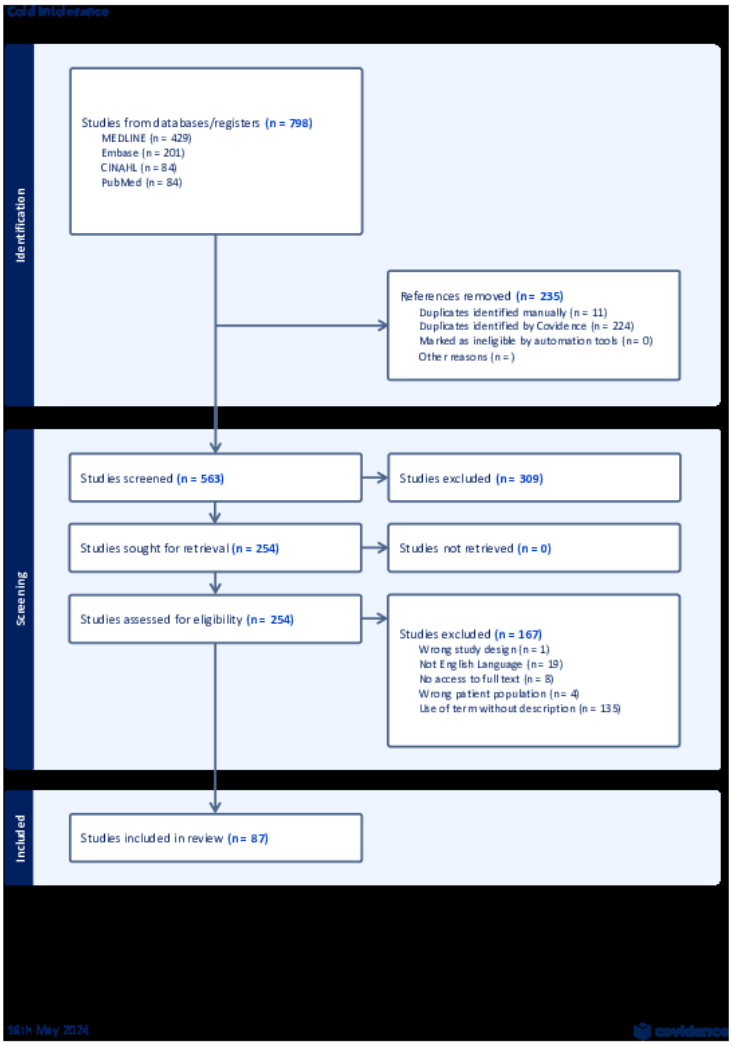
Cold Intolerance
Identification
Studies from databases/registers (n = 798)
MEDLINE (n = 429)
Embase (n = 201)
CINAHL (n = 84)
PubMed (n = 84)
References removed (n = 235)
Duplicates identified manually (n = 11)
Duplicates identified by Covidence (n = 224)
Marked as ineligible by automation tools (n = 0)
Other reasons (n =)
Screening
Studies screened (n = 563)
Studies excluded (n = 309)
Studies sought for retrieval (n = 254)
Studies not retrieved (n = 0)
Studies assessed for eligibility (n = 254)
Studies excluded (n = 167)
Wrong study design (n = 1)
Not English Language (n = 19)
No access to full text (n = 8)
Wrong patient population (n = 4)
Use of term without description (n = 135)
Included
Studies included in review (n = 87)
16th May 2024
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IMAGE CAPTION:
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TITLE: CONCEPTUALIZING COLD INTOLERANCE: A CONCEPT ANALYSIS

CONTROL ID: 4123030

TITLE: A QUALITATIVE ANALYSIS OF PATIENT/FAMILY TREATMENT GOALS FOR CHILDREN WITH BRACHIAL PLEXUS BIRTH INJURY

AUTHORS (FIRST NAME INITIAL, LAST NAME): J. Dorich[1], A. Allgier[1], T. Al-Muhtaseb[1], V. Plano Clark[2], R. Cornwall[1]

INSTITUTIONS (ALL):

1. Cincinnati Children's Hospital, Cincinnati, OH, United States.
2. University of Cincinnati, Cincinnati, OH, United States.

ABSTRACT BODY:

Purpose: Brachial Plexus Birth Injury (BPBI) is characterized by upper extremity paralysis resulting from birth trauma. Often, recovery is incomplete resulting in chronic functional impairments impacting many aspects of quality of life across the lifespan. Ideally, care is initiated in the neonatal period, requiring long-term collaborative coordination of therapeutic and surgical interventions. Recovery patterns are variable and current interventions are not curative. Therefore, understanding of patient/family treatment goals is needed to guide BPBI care; however, evidence of patient/family treatment priorities is currently unavailable. This qualitative analysis was undertaken to achieve two aims. First, to elucidate the breadth of patient/family treatment goals at the onset of care and determine how these goals vary by patient age, sex, and injury severity. Second, to evaluate patient/family goals set sequentially during a course of care to explore how such goals may evolve throughout long-term BPBI care.

Methods: At a tertiary BPBI clinic, patients/families are asked in writing what treatment goals they have at each visit, and their written goals are recorded verbatim. The present study retrospectively retrieved from the medical record such goals set at the first clinic visit for 120 patients (63 females/57 males, 88 upper/32 global injuries) seen between 2006 and 2022, distributed evenly across 3 age groups (0-2yrs, 3-9yrs, 10-17yrs) according to age at first visit. For the first aim, two researchers performed independent qualitative coding of all treatment goals set at the patients' start of care, meeting iteratively with the senior author to bring consensus to all coding. All three researchers collaboratively reflected on the coded data to derive themes respective to overall goal patterns. Coded goal data were then compared across age groups, sex, and injury severity (upper vs. global). For the second aim, a subset of patients (n = 106) were identified that had sequential goals set at multiple visits during the course of their care. The same researchers qualitatively analyzed sequential goals for each patient to determine if and how they changed during the course of care. These changes were then pooled for all 106 patients, and patterns of goal changes were noted in order to derive themes.

Results: In our first aim analyzing the goals at the onset of treatment, two themes arose in the data, each with respective subthemes. Theme 1: Patients/families want improvement predominantly focused on, but not limited to, participation and physiological function of the arm. Theme 1 has two subthemes: a) Regarding participation, sports/play dominate over schoolwork and b) Among physiologic functions of the arm, range of mobility predominates over strength, with no specific joint or motion focus, and rare references to sensation. Theme 2: Age drives differences more than sex or injury severity. Theme 2 has four subthemes: a) Goal focus is predominately on arm function and mobility in the early ages shifting to a focus more on activity participation with age, b) Heterogeneity and specificity of goals increase with age, aligning with children becoming individualized with maturation, c) Appearance and pain concerns arise in the middle and upper age groups respectively, and d) Goal differences based on sex or injury severity are few. In our second aim analyzing sequential goals, one theme with two subthemes arose from the data. Theme: During a course of care, goals often vary over time and among patients. Subthemes include: a) Variability exists in the number of goals, goal content, goal specificity and range of goals, b) Variability exists among patients regarding if, when, and how goals change during a course of care.

Conclusion: Patient/family treatment goals for children with BPBI at the onset of care are broad in scope, focusing on more than just the involved arm, with goals varying more by age than by sex or injury severity. Additionally, patient goals vary over time and among patients throughout a course of care. The finding that patient treatment goals are broad, diverse, and fluid over time, underscores the need for individualized goal-based treatment planning that adapts as patients age and as care progresses.

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TITLE: A QUALITATIVE ANALYSIS OF PATIENT/FAMILY TREATMENT GOALS FOR CHILDREN WITH BRACHIAL PLEXUS BIRTH INJURY

CONTROL ID: 4123084

TITLE: EVALUATING NON-SURGEON CLINICIAN KNOWLEDGE ON UPPER LIMB RECONSTRUCTION FOR CERVICAL SPINAL CORD INJURY UTILIZING AN INFORMATIONAL DECISION AID

AUTHORS (FIRST NAME INITIAL, LAST NAME): F. Laurent[1], P. K. Firouzbakht[2], C. Kennedy[1], S. Malone[3], A. L'Hotta[4], A. James[5], I. K. Fox[1], J. Dengler[6]

INSTITUTIONS (ALL):

1. Plastic and Reconstructive Surgery, Washington University School of Medicine in St. Louis, St. Louis, MO, United States.
2. Division of Plastic and Reconstructive Surgery, St. Louis University School of Medicine, St. Louis, MO, MO, United States.
3. Department of Surgery, Washington University School of Medicine in St. Louis, St. Louis, MO, United States.
4. Prevention Research Center, Washington University School of Medicine in St. Louis, St. Louis, MO, United States.
5. Division of Public Health Sciences, Washington University School of Medicine in St. Louis, St. Louis, MO, United States.
6. Sunnybrook Health Sciences Centre, Toronto, ON, Canada.

ABSTRACT BODY:

Purpose: Traditional tendon transfer and novel nerve transfer surgeries can be used to improve upper limb movement for individuals with cervical spinal cord injury (SCI). These procedures are not commonly performed, despite having proven to be an effective treatment option. Increasing SCI provider knowledge may improve utilization of these procedures in this population. The purpose of this study was to assess non-surgeon clinician knowledge about upper limb reconstruction in cervical SCI before and after using an informational Decision Aid (DA) about nerve and tendon transfer surgery.

Methods: An online DA about surgical options to improve upper limb function in cervical SCI was previously created by a multidisciplinary team consisting of cervical SCI experts, decision aid developers, clinicians, SCI lived-experience consultants and researchers with expertise in patient-centered care (Moritz et. al., MDM Policy & Practice, 2023). This tool was further revised prior to use in this project to expand the information and include content regarding the time-sensitive nature of nerve transfer surgery.

A pre/post knowledge test about nerve and tendon transfers was developed and tested by a multi-disciplinary, international group based on clinical evidence and Continuing Medical Education best practices. The assessment consisted of 10 questions evaluating knowledge about recovery after SCI, nerve and tendon transfer surgery, and perioperative considerations.

Non-surgeon clinician participants (occupational therapists, OT; physical therapists PT, physical medicine and rehabilitation specialists, PM+R; critical and acute care specialists, CAC; SCI patient advocates and community members and dissemination and implementations experts, ADV) that had been recruited to take part in a related focus group study were asked to complete the pre/post knowledge survey before and after interacting with the DA. Participants were identified by direct recommendation by research team members or members of the advisory board, which included people living with cervical SCI, a multidisciplinary group of clinicians, and medical information and dissemination researchers.

Data were collected via REDCap, a secure HIPAA-compliant online survey tool. The provided link first directed participants to the pre test, then to the DA after the completion of the pre test. Participants were able to read over the DA without further direction until they returned to the REDCap website to complete the post test. Test scores and correct answers were only provided after completion of both the pre and post tests. Participants were also asked to rate the acceptability, appropriateness, and feasibility of using the DA in clinical practice. Incomplete data were excluded.

Results: Thirty-five participants were included in the study, including eleven people in the OT+PT group, ten people in the PM+R group, seven people each in the CAC and ADV groups. In total, 40% of participants were physicians, and 37% were occupational or physical therapists, and the remainder were researchers, SCI community members, or other experts.

Participants found the DA to be highly acceptable, appropriate, and feasible, with mean ratings of 4.380.58, 4.290.60, and 4.130.84 on a scale of one to five, respectively. Participant knowledge scores improved from 72% prior to reviewing the DA to 93% after reviewing the DA. The CAC group showed the largest improvement in pre/post knowledge (34%). Each of the four groups showed an increased post test score after viewing the DA, with the CAC group showing the largest improvement (34.29%). Additionally, rates of correct answers for nine of the ten questions improved following review of the DA. Only one question had no change in the rate of correct answers (94.29% of participants answering correctly for both the pre test and the post test), and no questions had decreased rates of correct answers after participants viewed the DA.
Conclusion: The DA increased provider knowledge of nerve and tendon transfer surgery for cervical SCI, and was found to be acceptable, appropriate, and feasible. Future work will focus on dissemination and implementation of this DA into clinical practice.
Purpose: Traditional tendon transfer and novel nerve transfer surgeries can be used to improve upper limb movement for individuals with cervical spinal cord injury (SCI). These procedures are not commonly performed, despite having proven to be an effective treatment option. Increasing SCI provider knowledge may improve utilization of these procedures in this population. The purpose of this study was to assess non-surgeon clinician knowledge about upper limb reconstruction in cervical SCI before and after using an informational Decision Aid (DA) about nerve and tendon transfer surgery.
Methods: An online DA about surgical options to improve upper limb function in cervical SCI was previously created by a multidisciplinary team consisting of cervical SCI experts, decision aid developers, clinicians, SCI lived-experience consultants and researchers with expertise in patient-centered care (Moritz et. al., MDM Policy & Practice, 2023). This tool was further revised prior to use in this project to expand the information and include content regarding the time-sensitive nature of nerve transfer surgery.

A pre/post knowledge test about nerve and tendon transfers was developed and tested by a multi-disciplinary, international group based on clinical evidence and Continuing Medical Education best practices. The assessment consisted of 10 questions evaluating knowledge about recovery after SCI, nerve and tendon transfer surgery, and perioperative considerations.

Non-surgeon clinician participants (occupational therapists, OT; physical therapists PT, physical medicine and rehabilitation specialists, PM+R; critical and acute care specialists, CAC; SCI patient advocates and community members and dissemination and implementations experts, ADV) that had been recruited to take part in a related focus group study were asked to complete the pre/post knowledge survey before and after interacting with the DA. Participants were identified by direct recommendation by research team members or members of the advisory board, which included people living with cervical SCI, a multidisciplinary group of clinicians, and medical information and dissemination researchers.

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TITLE: EVALUATING NON-SURGEON CLINICIAN KNOWLEDGE ON UPPER LIMB RECONSTRUCTION FOR CERVICAL SPINAL CORD INJURY UTILIZING AN INFORMATIONAL DECISION AID

CONTROL ID: 4123099

TITLE: MUSCOLOSKELETAL LOAD, AND ERGONOMIC RISKFACTORS AMOMG SURGEONS, A COMPERISON BETWEEN LAPROSCOPIC AND ROBOTIC SURGERIES.

AUTHORS (FIRST NAME INITIAL, LAST NAME): Y. Levanon[1], K. Ephraim[3], P. Sigal[4], L. Liat[4], N. ayala[2], H. David[3]

INSTITUTIONS (ALL):

1. Occupational Therapy, Ben Gurion University, Ranana, Israel.
2. Occupational therapy, Sheba medical center, Ramat Gan, Israel.
3. Chirurgy, Sheba medical center, Ramat Gan, Israel.
4. Occupational Therapy, Tel Aviv University, Tel Aviv, Israel.

ABSTRACT BODY:

Purpose: Aim: This study aimed to document and compare General chirurgic surgeons' muscle activity load, musculoskeletal pain, and ergonomic risk factors in real-time while performing laparoscopic and robotic surgery.

Methods: Methods: This study is a multiple-dimensional subjective and objective assessment documenting the muscle activity load, pain, and ergonomic risk factors. Two senior surgeons, specialists in minimally invasive surgery, performed 22 laparoscopic and 22 robotic Hernia surgeries, using the Da Vinci robotic system.

The surgeon filled out a demographic questionnaire, visual analog scale (VAS) for pain rate before and after each surgery. The surgery process was divided into three main stages to document the load and the ergonomic risk factors of each stage of the surgery. Twelve Surface electromyography (SEMG) Trigno wireless sensors produced by Delsys Inc. were attached bilaterally to the Upper trapezius, Deltoid posterior and Anterior, Biceps and Wrist extensors and the Spinus Erectus. Maximal Voluntary (MVC) contraction was measured for each muscle before the surgery and served as a reference to compare the muscle load. The sensors document the muscle load during surgery without disturbing the surgeon's work. In addition, during his work, the surgeon was videotaped from 360^0, one minute for each surgical stage. The researcher analyzed the videotape using the Rapid Entire Body Assessment (REBA) and assessed the level of ergonomic risk factors.

Results: Results: There are differences in muscle load measured, between the laparoscopic and the robotic-assisted surgery methods at the various stages of Hernia surgery. The REBA score for the robotic surgery was higher, requiring further investigation and ergonomic change implementation. The muscle activity (%of MVC) was significantly lower in the robotic-assisted method in the middle deltoid, biceps, and wrist but higher in the upper trapezius and anterior deltoid. The muscle fatigue of the laparoscopic method was significantly higher in the Deltoid, Biceps, and Erectus spinatus. The Erectus spinatus fatigue was higher in the last stage of the robotic methods.

Conclusion: Conclusion: Muscle load was lower in the laparoscopic method of surgery, but further ergonomic changes implementation will be beneficial for the robotic methods. Implementing ergonomic changes may be beneficial for surgeons using both methods of surgery.

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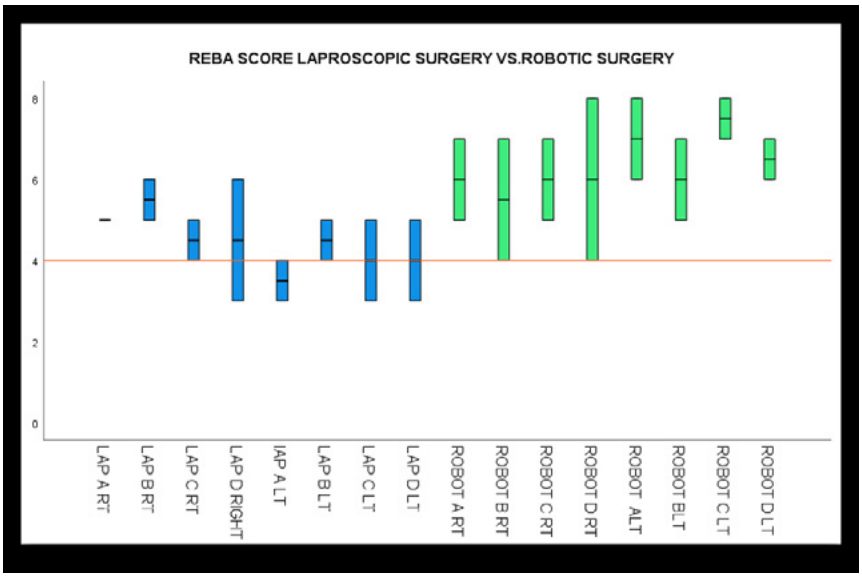
Conclusion: Conclusion: Muscle load was lower in the laparoscopic method of surgery, but further ergonomic changes implementation will be beneficial for the robotic methods. Implementing ergonomic changes may be beneficial for surgeons using both methods of surgery.

Table 1: Median frequency in the first two minutes and mean MVC for the monitored muscles in stage A of the surgery.							
		Median frequency (Hz)			Mean MVC (%)		
Muscle	Side	Laparoscopic	Robot	p	Laparoscopic	Robot	p
Upper trapezius	Left	82.1±21.8	85.3±10.9	.148	3.9±5.7	6.9±7.0	.039
	Right	95.2±12.6	96.5±14.9	.543	6.6±3.3	5.5±4.4	.175
Anterior deltoid	Left	93.0±28.4	97.8±8.8	.232	4.5±7.3	11.6±6.7	.002
	Right	100.8±39.2	97.9±28.5	.891	7.4±6.4	6.5±3.4	.806
Middle deltoid	Left	87.3±14.2	109.9±12.5	.002	5.6±4.6	6.7±11.2	.076
	Right	93.2±11.4	100.8±6.4	.068	10.2±8.2	7.9±14.5	.043
Biceps	Left	96.5±14.2	112.6±11.7	.011	7.3±7.2	1.9±1.0	<.001
	Right	110.0±19.1	121.1±14.8	.126	10.0±16.5	8.2±14.7	.533
Table 1b: Median frequency in the first two minutes and mean MVC for the monitored muscles in stage B of the surgery.							
Anterior deltoid	Left	88.1±6.5	108.3±14.7	<.001	6.9±7.1	8.4±4.6	.165
	Right	102.3±22.7	101.8±16.5	.775	14.4±8.4	9.3±7.5	.104
Biceps	Left	108.4±9.3	107.3±9.9	1.000	7.3±5.9	5.2±1.8	.884
	Right	102.8±17.6	116.4±13.8	.014	5.6±6.0	14.7±16.7	.157
Wrist	Left	102.9±9.6	121.7±31.5	.143	10.0±5.9	7.1±3.4	.172
	Right	131.6±16.9	105.5±23.1	.064	9.1±5.8	5.6±2.4	.045
Erector spine	Left	128.1±17.6	89.7±16.8	<.001	-	-	-
	Right	129.7±25.7	109.1±11.5	.026	-	-	-
Table 1c: Median frequency in the first two minutes and mean MVC for the monitored muscles in stage C of the surgery.							
Middle deltoid	Left	103.2±19.9	102.9±8.2	1.000	8.7±8.8	2.6±1.4	.098
	Right	101.5±9.9	108.7±9.1	.077	16.0±9.7	4.1±3.4	.006
Biceps	Left	92.1±10.6	139.9±57.4	.039	4.3±4.1	2.8±2.2	.709
	Right	104.3±9.8	119.8±7.3	.008	2.5±1.3	2.9±1.3	.254
Erector spine	Left	136.4±27.0	78.8±3.6	<.001			
	Right	152.6±34.5	107.2±15.4	.015			

Median frequency in the first two minutes and mean MVC for the monitored muscles in stage A of the surgery



Reba scor laproskopic vs. robotic surgery

IMAGE CAPTION: Median frequency in the first two minutes and mean MVC for the monitored muscles in stage A of the surgery Reba scor laproskopic vs. robotic surgery

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TITLE: MUSCOLOSKELETAL LOAD, AND ERGONOMIC RISKFACTORS AMOMG SURGEONS, A COMPERISON BETWEEN LAPROSCOPIC AND ROBOTIC SURGERIES.

CONTROL ID: 4123122

TITLE: A MIXED METHODS ANALYSIS OF HEALTH LITERACY AMONG ADULTS WITH BRACHIAL PLEXUS BIRTH INJURY

AUTHORS (FIRST NAME INITIAL, LAST NAME): J. Dorich[1], J. Whiting[2], R. Ittenbach[1], V. Plano Clark[3], J. Marks[1], R. Cornwall[1]

INSTITUTIONS (ALL):

1. Cincinnati Children's Hospital, Cincinnati, OH, United States.
2. United Brachial Plexus Network, Cincinnati, OH, United States.
3. University of Cincinnati, Cincinnati, OH, United States.

ABSTRACT BODY:

Purpose: Brachial Plexus Birth Injury (BPBI) can cause permanent neuromusculoskeletal sequelae and functional impairments that persist into adulthood. Information to guide healthcare providers in delivering care for affected individuals in adulthood is limited. In this sequential mixed methods study we sought to understand the healthcare experience of BPBI-affected adults drawing upon the World Health Organization's (WHO) broad definition of health literacy: a person's ability to access health information and act to improve their health.

Methods: This analysis is part of a larger sequential mixed methods study focused on understanding health-related quality of life (HRQoL) and the health literacy of BPBI-affected adults. First, BPBI-affected adults were recruited from two online support groups to participate in a survey designed to obtain the breadth of their HRQoL and healthcare experiences. Next, a purposively diverse sample of 12 respondents participated in individual semi-structured interviews to explore HRQoL and health-care experiences in depth. Then the qualitative responses from the surveys and interviews were systematically pooled and linked to numeric codes in the International Classification of Functioning, Disability and Health (ICF) taxonomy to identify a subset of patient reported outcome measures (PROMs) that aligned with measuring the respondents reported HRQoL and health literacy experiences. Qualitative data pertaining to participants' experiences with healthcare linked to 5/9 scales of the Health Literacy Questionnaire (HLQ). We returned to both online support groups to administer a survey of all PROMs, including the five HLQ scales: HLQ1: Feeling understood and supported by healthcare providers (HCPs); HLQ2: Having sufficient information to manage my health; HLQ3: Actively managing my health; HLQ6: Ability to actively engage with HCPs; HLQ7: Navigating the healthcare system. Each HLQ scale consists of 4-6 questions with a 4-5 level Likert response scale with higher numbers representing more positive ratings. Mean responses on each subscale were compared to 95% confidence intervals for HLQ published scores for 5 other adult chronic health conditions: heart disease, kidney disease, kidney transplant, prostate cancer, psoriasis. The relevant pooled qualitative data from the first survey and the interviews were qualitatively analyzed to determine themes of the health-literacy experience.

Results: Results of the first survey were obtained from 183 respondents, 21 to 87 years of age, including 152 females. In the interview portion of the study, there were 12 interview participants, 26 to 81 years of age, 7 female. In our second survey, we received complete HLQ forms from 147 participants, 22 to 88 years of age, including 119 females. Means (±SDs) for each HLQ scale were as follows: HLQ1: 2.67±0.88 (4-level Likert scale); HLQ2: 2.83±0.73 (4-level scale); HLQ3: 2.75±0.64 (4-level scale); HLQ6: 3.47±0.88 (5-level scale); HLQ7: 3.25±1.07 (5-level scale). When these 5 HLQ scale mean scores were compared to the 95% confidence intervals for published means of corresponding HLQ scale scores from the 5 other chronic conditions (Figure 1), BPBI-affected adults' scores were lower scores in 17 of these 25 comparisons (i.e., 5 scales across all 5 comparison conditions), higher in 6/25, and no difference in 2/25. BPBI-affected adults scored lower than those with all other conditions, except for psoriasis, on HLQ3, HLQ6 and HLQ7. Findings from the qualitative portion of the analysis revealed a range of health literacy experiences for BPBI-affected adults, including: 1) A spectrum of experiences, skewed towards feelings of being dismissed and distrust, although when affected adults felt their HCPs sought to understand them, the quality of care was perceived more positively. 2) Varied knowledge of BPBI among affected adults and an expressed desire to know more about the progression of BPBI and expected HRQoL outcomes. 3) A range in the amount and types of healthcare services utilized throughout the lifespan among affected adults. 4) Diverse communication experiences, from BPBI-affected persons receiving conflicting or inadequate information to experiencing communication that facilitated positive healthcare experiences and access to care. 5) Varied levels of difficulty with accessing healthcare providers with knowledge of BPBI in adults and resources pertaining to BPBI affected adults.

Conclusion: The health-literacy of BPBI-affected adults falls below that measured in populations of adults with other chronic medical conditions. Opportunities exist for improving the health literacy experience, including 1) access care for the BPBI affected extremity, 2) communication and supportive relationships with HCPs, 3) accessible information about BPBI prognosis, treatment, and long-term outcomes, and 4) availability of healthcare providers knowledgeable of BPBI care for affected adults.

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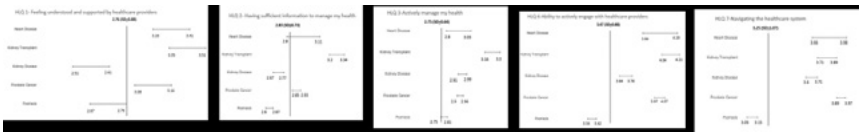

IMAGE CAPTION:
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TITLE: A MIXED METHODS ANALYSIS OF HEALTH LITERACY AMONG ADULTS WITH BRACHIAL PLEXUS BIRTH INJURY

CONTROL ID: 4123233

TITLE: PEDIATRIC UPPER LIMB SURGICAL EXPERIENCES WITH HEMIPLEGIA: A QUALITATIVE STUDY OF CHILD AND PARENT PERSPECTIVES

AUTHORS (FIRST NAME INITIAL, LAST NAME): A. Rodriguez[1], K. Little[1], J. Dorich[1]

INSTITUTIONS (ALL):

1. Cincinnati Children's Hospital Medical Center, Cincinnati, OH, United States.

ABSTRACT BODY:

Purpose: Various surgical procedures have been reported as beneficial interventions for addressing the impaired manual function caused by spasticity and muscle imbalances in children with upper extremity hemiplegia; however, the effect of surgery on this patient population's quality of life is not well understood. Furthermore, the child and family's surgical decision making experience has not been explored. Yet, prior studies have identified the need to explore shared decision making among children with neurodevelopmental disorders. The study aim is to better understand patients' and parents' experiences with surgical decision making, the recovery process, and their perceptions of surgical outcomes qualitatively to inform patient-centered care practices for children with upper extremity hemiplegia.

Methods: Patients who underwent reconstructive surgery on their hemiplegic upper extremity between December 2019 and March 2022 and their parents were recruited to participate in one-on-one semi-structured interviews. Data collection and analysis were performed iteratively with separate analysis of patient and parent data. Two researchers independently performed qualitative coding. Then they met with the senior author to bring consensus to all coded data. All three researchers performed independent theming of the separate patient and parent data and then met to compare findings and perform thematic analysis of merged patient and parent data. The research team also derived models reflecting the children's and parents' experiences with upper extremity surgery.

Results: Seven patients (5 female, mean age 14.3+/-3.1 years) and parent dyads (n = 14) participated in interviews. All patients were classified as MACS (Manual Ability Classification System) level III or higher. The patients' etiology was related to cerebral palsy (n = 3) and brain surgery (n = 4). Patients underwent a variety of surgical procedures, including one isolated wrist extension tendon transfer (WETT), two with WETT and wrist flexor tendon lengthening, two with WETT and hyperselective neurectomy, and two with wrist arthrodesis and flexor tendon lengthening. One overarching theme arose in the merged data: The experience of upper extremity surgical decision-making and recovery is a journey. Additionally, we found four subthemes: 1. Knowledge and desired outcomes are foundational to the patient and family's surgical decision making, 2. Pediatric patients value participating in surgical decision making, 3. Recovery is a process resulting in positive outcomes for the child and family, and 4. Emotional complexity is present and relationships/communication with the medical team are valued throughout the journey. Models of the parents' (Figures 1a) and child's (Figures 1b) experiences of upper extremity surgery display the relationship of the subthemes within the overarching theme and illustrate differences and similarities between the parents and children's experiences. While parents and children have similar experiences, parents seek knowledge for a longer period and in more ways than the children leading up to surgical decision making. Also, parents consider a potential need for further surgical interventions that may be beneficial for their child whereas children do not. Additionally, emotional complexity is a larger aspect of the journey for the children than for their parents.

Conclusion: The journey of deciding to undergo upper extremity surgery and recovery is complex, emotional, and lengthy for pediatric patients and their parents, yet outcomes are perceived favorably. Study findings reveal aspects of the experience which hand specialists may consider for facilitating patient-centered care practices for shared surgical decision making and maximizing the child and family's quality of life during the recovery experience.

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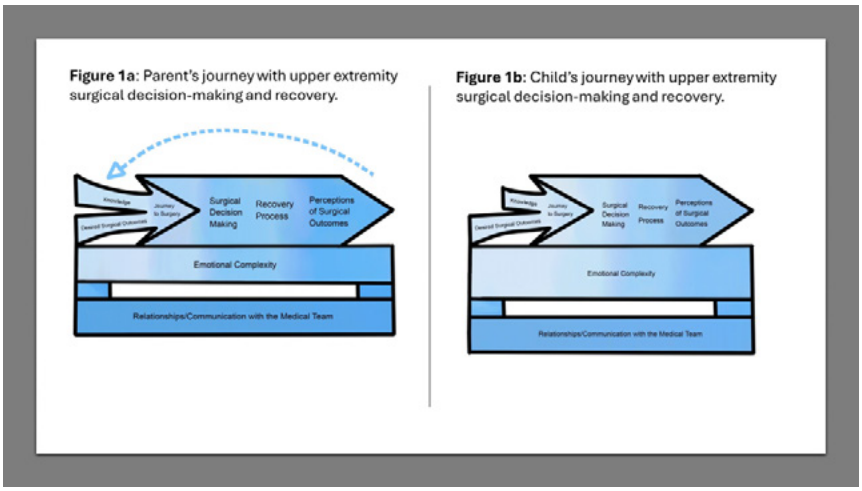

Figure 1a: Parent's journey with upper extremity surgical decision-making and recovery.

Figure 1b: Child's journey with upper extremity surgical decision-making and recovery.

IMAGE CAPTION:
(no table selected)
TITLE: PEDIATRIC UPPER LIMB SURGICAL EXPERIENCES WITH HEMIPLEGIA: A QUALITATIVE STUDY OF CHILD AND PARENT PERSPECTIVES

CONTROL ID: 4123309

TITLE: IMPACT OF A MUSCULOSKELETAL HEALTH FOR MUSICIANS (MHM) PROGRAM FOR PROFESSIONAL AND MUSICIAN STUDENTS

AUTHORS (FIRST NAME INITIAL, LAST NAME): B. Basseri[1], S. Streeter[1], J. Gutierrez Naranjo[1], A. Wolff[1]

INSTITUTIONS (ALL):

1. Hand & Upper Extremity, Hospital For Special Surgery, New York, NY, United States.

ABSTRACT BODY:

Purpose: This study is a follow-up on the treatment arm of our randomized control trial which examined the efficacy of a formal musculoskeletal health for musicians (MHM). In this arm we added targeted hand and wrist intrinsic isometric exercises. The MHM combines education with exercise instruction for pain and injury prevention in professional and student musicians. In this study, our aim was to implement an improved MHM and formally assess the overall adherence, and changes in performance related pain scores. We hypothesized that high MHM adherence would lead to improvements in patient reported pain.

Methods: Musicians were administered a questionnaire prior to and after the implementation of the MHM. The questionnaire collected data on practice habits, type of instrument, number of years of playing, and instrument playing level. The validated, Musculoskeletal Pain Interference and Impact Questionnaire for Musicians (MPIIQM) was used to collect data at baseline and ≥ 1 month after implementation of the MHM. It included categories related to frequency, intensity, duration and location of pain, and impact of pain on playing habits. A customized survey (rated 1-5) captured adherence across 5 categories. The two-part intervention included a 30-minute lecture on overuse injuries, musculoskeletal pain conditions, and anatomy related to performance mechanics. The second, 60-minute component included a workshop covering five domains: warm up exercises, pacing/breaks, posture/playing positions, “smart” practice habits, and specific pre-performance stretches and exercises plus the hand specific program.

Results: 48 patients were recruited for the study. Of these patients only17 responded to the follow-up survey and included in the final analysis. The mean age was 24.5 ± 7.14 years 71% female, and 29% male. Participants played their instrument for an average of 15.68 ± years and practiced an average of 14.1 ± 9.5 hours per week. At baseline, worst pain level was 4.5/10 and did not change at follow up (4.5/10). Our preliminary results demonstrated low adherence to the MHM in 3/5 domains (smart practice, posture, pacing) and high adherence in physical warm-up and stretching.

Conclusion: - Patients who consistently reported pain, reported pain in the hands, wrists, and forearms

- Compared to our pilot study, we had a lower response rate and overall adherence likely due to less follow-up time points, and absence of weekly reminders

- High adherence to pacing guidelines, posture recommendations, and smart practice habits were related to pain reduction in our previous study. The low adherence numbers here may reflect the poor outcome

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Table 1: Patient Characteristics	Overall N=17
Average Age (years)	24.5
Male	29.4%
Female	70.6%
Full time Musician	23.5%
Part Time Musician	76.5%
Performance Related Pain	
Pain That has Ever Interferred With Playing	88.2%
Pain That has Interferred With Playing in Past Month	47.06%
Pain That has Interferred With Playing in Past Week	41.3%
Average Time Spent Playing Instrument (hours/week)	28.2
Instruments Being Played	
Piano	5.9%
Viola	5.9%
Violin	41.2%
Cello	5.9%
Percussion	11.8%
Trombone	5.9%
Clarinet	5.9%

Table 2: Outcome Data	Pre-Intervention N=17	Post-Intervention N=17
Most Common Pain Location	Hand, Wrist	Hand, Wrist, Forearm
Pain Rating at It's worst *	4.5	4.5
Pain Interference With Mood**	4.7	4.3
Pain Interference With Enjoyment of Life**	4.2	4.3
Pain Interference With Playing Instrument**	4.35	4.2
MIDM Adherence		
Physical Warm-Up Exercises		High
Playing Guidelines		Low
Playing Posture Recommendations		Low
Smart Practice Habits		Low
Stretching Exercises		High
*(0= no pain, 10=extreme pain)		
**(0=does not interfere, 10=completely interferes)		

IMAGE CAPTION:
(no table selected)
TITLE: IMPACT OF A MUSCULOSKELETAL HEALTH FOR MUSICIANS (MHM) PROGRAM FOR PROFESSIONAL AND MUSICIAN STUDENTS

CONTROL ID: 4123492
TITLE: COMPREHENSIVE PSYCHOSOCIAL EVALUATION IN HAND THERAPY – IT'S MORE THAN DEPRESSION!
AUTHORS (FIRST NAME INITIAL, LAST NAME): K. Iseminger[1]
INSTITUTIONS (ALL):
1. Occupational Therapy, University of North Dakota, Grand Forks, ND, United States.
ABSTRACT BODY:
Purpose: Over the last 40 years, researchers have continuously documented the dominant role psychosocial factors play in physical healing and disability perceptions of adults with upper extremity (UE) conditions. This population is at particular risk for experiencing psychosocial barriers to physical healing given the sheer number of daily tasks requiring UE function. Difficulty or inability to complete typical daily activities often cause feelings of dependence on others, loss of roles, uncertainty about the future, and involuntary inactivity which may lead to psychosocial sequelae. Although this problem is well documented in the literature, there are minimal resources available that specifically guide hand therapy rehabilitation specialists in best-practice psychosocial evaluation procedures for this population. Practitioners cannot predict a person will experience negative psychosocial factors based solely on objective information about the injury such as severity or experience of trauma; therefore, intentional evaluation is warranted. There are numerous assessment instruments measuring a multitude of psychosocial constructs; however, it is unrealistic to measure every construct in the context of hand therapy. Rather, it is important to identify the psychosocial constructs that most often limit performance of daily tasks in this population to inform the creation of a brief psychosocial evaluation method appropriate for the hand therapy context. Therefore, the purpose of this scoping review was to map the psychosocial constructs assessed and their effect on functional outcomes in adults with UE conditions.
Methods: This scoping review was developed following the Joanna Briggs Institute and Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) guidelines. Relevant literature published after 1984 was collected from: Academic Search Ultimate, CINAHL, Embase, Medline, PsycInfo, PubMed, and SocINDEX. Empirical studies that utilized a published psychosocial assessment instrument to determine effects on functional outcomes in adults experiencing UE impairment were included. Following the collection of literature from these databases, a manual search of the references of all included studies was also completed. Data from each study was collected using a customized data extraction instrument.
Results: A total of 94 studies met this scoping review's inclusion criteria. Within the included studies 85 unique psychosocial assessment instruments were administered measuring 21 different psychosocial constructs. Depression, anxiety, and the catastrophizing coping style were the most commonly measured constructs. The 21 identified psychosocial constructs were further categorized into three broad clusters representing psychosocial assessments that measured: psychological symptoms, personal characteristics and coping styles, and psychosocial resiliency factors. Psychological symptoms were by far the most assessed psychosocial construct cluster as there were 150 assessments integrated throughout the 94 included studies. Meanwhile, there were 61 assessments of personal characteristics and coping styles and only 29 assessments of psychosocial resiliency factors. Findings from the included studies were synthesized through the lens of each of the three psychosocial construct clusters to identify relationships to outcomes relevant to hand therapy practice. The literature indicates that adults with UE conditions who employ negative coping strategies, such as fear and avoidance, tend to experience greater psychological symptoms. The presence and extent of psychological symptoms is positively correlated with pain intensity and perceived disability. Meanwhile, those who embody psychosocial resiliency factors, such as high self-efficacy and internal locus of control, tend to experience less pain and perceptions of disability. However, it should be noted that the evidence relevant to psychosocial resiliency factors was much more limited than the data on psychological symptoms.
Conclusion: Given that a person's propensity to experience psychosocial barriers to functional performance cannot be predicted based on the severity of their UE condition, objective physical measurements, or a particular personality profile, intentional psychosocial evaluation is imperative for every person experiencing a UE condition. Although the available literature is highly skewed towards measurement of negative psychosocial factors, such as psychological symptoms and negative coping styles, it is also important to measure psychosocial resiliency given its promising association with improved functional outcomes in the population. A balanced evaluation of both positive and negative

psychosocial constructs is recommended. Based on the results of this review, a preliminary psychosocial evaluation model was developed to guide hand therapy specialists.

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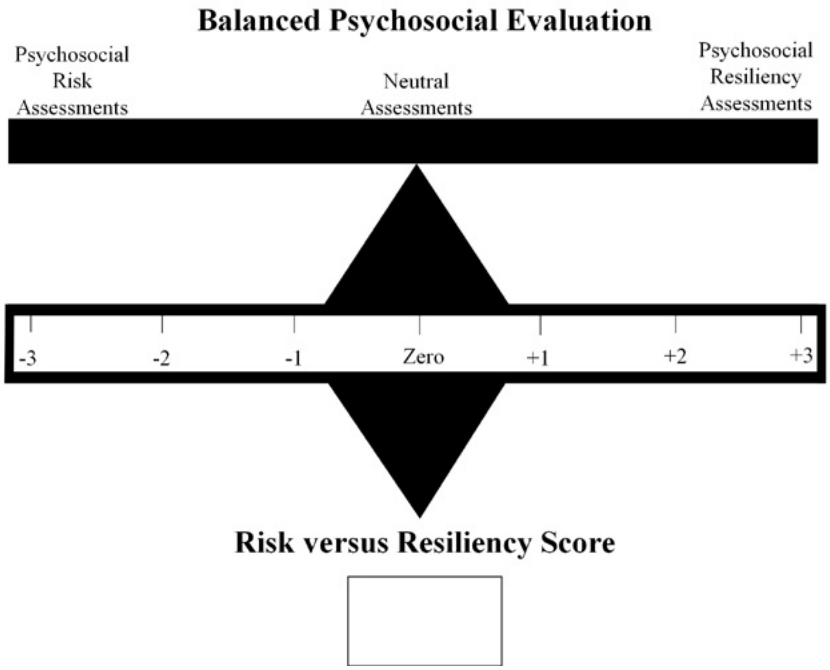
Balanced Psychosocial Evaluation
Psychosocial Risk Assessments
Neutral Assessments
Psychosocial Resiliency Assessments
-3
-2
-1
Zero
+1
+2
+3
Risk versus Resiliency Score

IMAGE CAPTION:
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TITLE: COMPREHENSIVE PSYCHOSOCIAL EVALUATION IN HAND THERAPY – IT'S MORE THAN DEPRESSION!

CONTROL ID: 4123514

TITLE: EFFECTIVENESS OF A WORK CONDITIONING-WORK HARDENING PROGRAM ON PATIENTS RECEIVING HAND THERAPY

AUTHORS (FIRST NAME INITIAL, LAST NAME): M. Auch[2], P. S. Furgason[3], L. Myers[4], T. Denninger[5], K. Melby[1], A. Lutz[5]

INSTITUTIONS (ALL):

1. Care Delivery, ATI Physical Therapy, Greer, SC, United States.
2. Occupational Therapy, ATI Physical Therapy, Chicago, IL, United States.
3. Occupational Therapy, ATI Physical Therapy, Columbus, IN, United States.
4. WC Operations, ATI Physical Therapy, Bolingbrook, IL, United States.
5. Institute for Musculoskeletal Advancement (i-MSKA), Greenville, SC, United States.

ABSTRACT BODY:

Purpose: Skilled rehabilitation is often required following routine workplace injuries, such as tendinopathies, crush injuries, and lacerations, which may necessitate outpatient rehabilitation services with or without surgery. Certified Hand Therapists (CHTs) are skilled rehabilitation experts that guide injured workers through care plans that emphasize returning to full function, leveraging Worker's Compensation (WC) benefits. While Acute WC rehabilitation (physical or occupational therapy services received acutely post-injury or surgery) is often sufficient for a patient to return to work safely and efficiently, patients sometimes require greater intensity and duration of care in the form of Work Conditioning-Work Hardening (WCWH), to build the necessary capacities and confidence to fulfill their job duties. The purpose of this study was to compare patient reported outcomes (PROs), CHT visit utilization, and Physical Demand Level (PDL) changes over time between Acute WC and Acute+WCWH care delivery modes among patients with a Medium or higher PDL (i.e., exerts 20-50 pounds of force occasionally, 20-25 pounds of force frequently, or 10 pounds of force constantly) that received WC services. Patients with lower PDL levels were excluded from this study.

Methods: Patient data, including initial and final PRO, initial and final PDL, job PDL classification, visit utilization, and demographic information, were obtained for patients that required CHT services utilizing WC benefits between February 2021 and March 2024. Cohorts were developed based on care delivery classification—Acute WC and Acute+WCWH. Episodes included in the Acute+WCWH cohort were blended such that all visits were combined and the earliest recorded PRO and PDL information was input as 'initial' values and terminal WCWH measurements were used for the 'final' values. The PRO required for inclusion in this study was the Quick Disabilities of the Arm, Shoulder, and Hand (qDASH), a disability scale that ranges from 0 (normal, pain free function) to 100 (total disability). Patient's estimated PDL values were assigned numbers by rank: 1=Sedentary, 2=Light, 3=Medium, 4=Heavy, and 5=Very Heavy. Numeric change from initial to final estimated PDL was calculated for each episode. Analyses of Variance (ANOVAs) compared total visits per episode, change from initial to final PRO, and change from initial to final PDL; controlling for general health (Veterans RAND 12-Item Health Survey [VR12] Mental & Physical Component Scores), chronicity (condition > 90 days: yes/no), and related surgery (<=120 days of 1st visit). Significance was set a priori at α=0.05 and Tukey's post-hoc analyses were performed for all significant results.

Results: After carefully combining episodes among patients in the Acute+WCWH cohort, a total of 2,724 patient episodes were identified, including 25 in the Acute+WCWH cohort. While all patients were appropriate for comparisons of CHT visit utilization and PDL change, 938 patient episodes were available for a comparison of qDASH change. Of the 25 patient episodes in the Acute+WCWH cohort, 11 patient episodes had initial and final qDASH available for the PRO analysis. Controlling for chronicity, related surgery, and initial VR12, the Acute+WCWH cohort (mean visits 39.1 [95% CI 33.5,44.7]; mean PDL change 1.2 [1.1,1.2]; mean qDASH change 31.7 [23.3,40.1]) attended 22.7 more visits ($p<0.001$), achieved 1.2 more PDL change ($p<0.001$), and achieved 12.9 points more qDASH change ($p<0.001$) than the Acute WC cohort (16.4 [15.9,17.0]; 0.0 [0.0,0.0]; 18.8 [17.9,19.7]).

Conclusion: The study identified nearly 23 more visits in the Acute+WCWH cohort than the Acute WC cohort. While this represents a significant utilization expense, the Acute+WCWH cohort achieved nearly 13 points more change in qDASH and over 1 PDL categorical improvement more than the Acute WC cohort. Limitations in this study are the size of the WCWH cohort—particularly in the PRO analysis—and the integrity of documentation early in the study window. Operational efficiencies and improvements to the electronic medical record have improved the consistency of the estimated PDL classification significantly between 2021 and 2024; however, there has been notable variability in

reporting accuracy that time. Episodes with qDASH were limited because therapists could choose between several PRO options. For this study, we opted to use the sample of patients with initial and final qDASH instead of attempting to combine disparate PROs. Notably, while more visits were utilized in the Acute+WCWH cohort, these patients represented ~1% of the sample—indicating reserved use for those with the greatest need and potential benefit, resulting in differentiated outcomes.

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TITLE: EFFECTIVENESS OF A WORK CONDITIONING-WORK HARDENING PROGRAM ON PATIENTS RECEIVING HAND THERAPY

CONTROL ID: 4123989
TITLE: CRITICALLY APPRAISED TOPIC: WHAT IS THE PREVALENCE OF POST-TRAUMATIC STRESS DISORDER (PTSD) IN OLDER ADULTS AFTER A FALLS-RELATED INJURY
AUTHORS (FIRST NAME INITIAL, LAST NAME): C. Peters[1]
INSTITUTIONS (ALL):
1. Occupational Therapy, Atrium Health Wake Forest Baptist, Winston Salem, NC, United States.
ABSTRACT BODY:
Purpose: Background: Every year, over 800,000 older adults are hospitalized due to fall-related injuries. Falls are associated with upper extremity fractures, particularly wrist fractures. Unfortunately, as the population of older adults grows, the number of falls and fall injuries is also expected to increase.

Among the older population, stressors such as loss of physical integrity or serious illness can lead to the development of PTSD. It is well-documented that functional outcomes and health-related quality of life following a traumatic injury are strongly influenced by PTSD, even after adjustment for baseline status and injury severity. Although not always conceptualized as a traumatic event, emerging evidence suggests falls may lead to the development of PTSD in older adults.

CAT Question: What is the prevalence of PTSD among older adults who experience a fall-related injury?
Methods: Search Strategy: A literature search was conducted using the PubMed database. A search strategy was initially generated using the combined MeSH terms: “Post-Traumatic Stress Disorder” and “Accidental Falls.” Nine articles were initially retrieved. The search strategy was expanded using the MeSH term “Post-Traumatic Stress Disorder” and the keyword “Falls.” The reference lists of selected papers were manually screened to identify other citations.

Articles were considered for inclusion if they described originally designed studies with 1) subjects over the age of 65 for part or all the population; 2) falls as a mechanism of injury; and 3) assessment of psychological consequences of said fall. Only English-language articles were included. The search was not restricted by date or publication status. Data extracted included study characteristics, patient characteristics, and risk factors/outcomes generated.
Results: The search strategy generated 195 citations. 189 from the database search, and 6 from a manual review of references. 9 relevant publications were retained for review.

Adamczewska & Nyman found probable PTSD in 32% of 119 older adults (ages 60+) hospitalized due to a falls-related injury. (2021).

Bloch et al. found probable PTSD in 26% of 36 older adults (ages 75+) admitted to the ED because of a fall, 2 months after ED admission (2014).

Chung et al. found that 7% of 196 older adults (65+) hospitalized due to a fall met the criteria for full acute PTSD (2009).

Eckert et al. found tht 49% of 115 older adults with hip/pelvic fracture because of a fall reported post-traumatic stress symptoms in avoidant and re-experiencing clusters (2020).

Eman Abdulle & van der Naalt found that among 162 older adults (ages 60+) with mild traumatic brain injury (MBTI), 75% of which resulted from a fall, 38% of patients met criteria established for PTSD (2020)

Jayasinghe et al. found that among 100 older adults admitted to the hospital for a fall, 27% demonstrated severe post-traumatic stress symptoms (2014).

Kornfield et al. followed 456 older adults undergoing surgical repair of a hip fracture resulting from a fall. They found no patients in this sample qualified for the full diagnosis of PTSD (2017).

Schindelar et al. found that among patients who underwent surgery for distal radius fracture because of a fall (median age 63 years), 1 patient (2.3%) met criteria for probable PTSD 0-2 weeks post-surgery, 2 (4.8%) met criteria 3-6 months post and 3 (7.3%) met criteria 12-15 months post (2009).

The findings are detailed in Table 1 (see below).
Conclusion:
Conclusion: A minority of older adults may develop persistent PTSD after a fall, with estimates of prevalence ranging from 0% to 38% depending on assessment method and timing.

Limitations: The assessment methods and timing varied widely between studies. Additionally, several studies reported PTSD symptom severity as an outcome separate from PTSD diagnosis, using the total score of the PTSD assessment instrument as a proxy measure for overall symptom severity. Most reviewed studies used the diagnostic criteria in the DSM-IV. Early research suggests that changes from DSM-IV to DSM-V may alter the number of individuals who screened positive for probable PTSD. As a significant portion of this research is cross-sectional and there are likely to be notable differences in the demographic characteristics of the samples, the generalizability of the findings may be limited.

Clinical Implications: Hand therapists treating older adults for falls-related wrist fractures should be aware of the potential for post-traumatic stress disorder (PTSD) post-injury. Future research should focus on predicting and identifying PTSD in older adults with falls-related injuries, as well as developing a screening process for at-risk patients.
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Conclusion: A minority of older adults may develop persistent PTSD after a fall, with estimates of prevalence ranging from 0% to 38% depending on assessment method and timing.

Limitations: The assessment methods and timing varied widely between studies. Additionally, several studies reported PTSD symptom severity as an outcome separate from PTSD diagnosis, using the total score of the PTSD assessment instrument as a proxy measure for overall symptom severity. Most reviewed studies used the diagnostic criteria in the DSM-IV. Early research suggests that changes from DSM-IV to DSM-V may alter the number of individuals who screened positive for probable PTSD. As a significant portion of this research is cross-sectional and there are likely to be notable differences in the demographic characteristics of the samples, the generalizability of the findings may be limited.

Clinical Implications: Hand therapists treating older adults for falls-related wrist fractures should be aware of the potential for post-traumatic stress disorder (PTSD) post-injury. Future research should focus on predicting and identifying PTSD in older adults with falls-related injuries, as well as developing a screening process for at-risk patients.

Table 1

Characteristics and Findings of Reviewed Publications

Authors	Study Design	Study Population	Timing	Main Findings
Adamczewska & Nyman, (2022)	Cross-sectional Study	119 older adults (60+) hospitalized due to fall-related injury	Ranges from <1 week (75%) to <8 weeks (25%) since injury.	PTSD –PCL-4, Responses >3 treated as symptomatic and diagnosed according to DSM-4 criteria, Fear of Falling – Single-item yes/no assessment FoF – Falls-Efficacy Scale International (FES-I) 32% met criteria for PTSD diagnosis. Those with PTSD symptoms were more likely to have lower levels of falls efficacy, believe they might fall in the future, and were more likely to experience Fear of Falling.
Blair et al., (2014)	Prospective cohort study	96 older adults (75+) referred to the ED after a fall	Anxiety assessed at ED,	PTSD – PCL-6, Responses scored over 44 were used as a positive cut-off score for PTSD, Anxiety – State-Trait Anxiety Inventory 26% met criteria for PTSD at 2 months, 32.5% had significant anxiety post fall. Anxiety score at baseline was correlated with higher PCL score at 2 months, history of falls was correlated with higher PCL score
			PTSD and Anxiety assessed at 2-month follow-up	
Chang et al., (2008)	Prospective cohort study	167 older adults (65+) hospitalized after a fall	Baseline assessment in hospital (median time from injury 14 days)	PTSD – PSS, Diagnosed according to DSM 4 criteria as in the PCL, Responses are scored 0–3 to determine PTSD symptom severity. Considered full and partial PTSD diagnoses. Activity Restriction – Groningen activity restriction scale FoF – FES-I Anxiety & Depression – Hospital Anxiety and Depression Scale (HADS)
			12-week follow-up 3-month follow-up	At baseline, 14 patients (7%) met criteria for full acute PTSD. 9 (18%) patients met criteria at 12 weeks, and 4 (4%) met criteria at 3 months, Higher percentages were noted for partial PTSD, 40% reported moderate or worse PTSD symptoms at baseline, 28% at 12 weeks and 4 months.

IMAGE CAPTION:
(no table selected)
TITLE: CRITICALLY APPRAISED TOPIC: WHAT IS THE PREVALENCE OF POST-TRAUMATIC STRESS DISORDER (PTSD) IN OLDER ADULTS AFTER A FALLS-RELATED INJURY

CONTROL ID: 4124009

TITLE: PREFABRICATED ORTHOSES FOR THE CONSERVATIVE MANAGEMENT OF TRIANGULAR FIBROCARTILAGE COMPLEX INJURIES: A LITERATURE REVIEW

AUTHORS (FIRST NAME INITIAL, LAST NAME): D. Plutschack[1], T. Aeschliman[1], J. Lewis[1], M. Plantikow[1], J. Levis[1]

INSTITUTIONS (ALL):

1. Occupational Therapy, Des Moines University, Des Moines, IA, United States.

ABSTRACT BODY:

Purpose: Clients with ulnar-sided wrist pain from TFCC injuries are often referred to a hand therapist, with care provided by an occupational or physical therapist. Orthotic fabrication is frequently used to address pain, ROM, and functional use of the upper extremity. The purpose of this literature review is to examine literature related to prefabricated orthotic fabrication for the conservative management of TFCC injuries for the preparation of a survey study. The purpose of the survey study will be to determine which orthoses hand therapists most commonly recommend for the conservative management of TFCC injuries and determine therapists' perception on their effectiveness for pain, ROM, function and weightbearing status. The research question "What is the effectiveness of prefabricated orthoses for the conservative management of TFCC injuries?" was used to guide this literature review.

Methods: A comprehensive literature search was conducted to identify studies examining conservative treatment for TFCC lesions, focused on prefabricated orthoses. This search utilized many electronic databases including PubMed, MEDLINE, CINAHL, Cochrane Library, and Scopus. Various search terms such as "TFCC", "TFCC injury", "wrist pain," "conservative treatment," and "orthotic devices" were used within the literature review. This literature review was utilized to design a survey-based study that will be conducted in fall 2024. Studies were included in this literature review 1. Study examined conservative treatment options for TFCC injuries. 2. Included prefabricated orthoses for TFCC injuries. Studies were examined using the American Occupational Therapy Association's Levels of evidence and included studies at levels 1-4.

Results: A total of three studies met the inclusion criteria to be included in this literature review, Kim et al. (2023), Asmus et al. (2022), and Barlow (2016). Studies included in this literature review include one Level IIb prospective cohort study, one Level III retrospective cross-sectional case series study, and one Level IV single-subject case report. Kim et al. (2023), a Level IIb study, focused on individuals with TFCC lesions both traumatic and degenerative using the WristWidget to determine if the weight-bearing capacity can be used as a diagnositic tool to differentiate stable vs unstable TFCC injuries. Results of this study found an increased ability for weight-bearing capacity by an average of 4kgs in all participants. Asmus et al. (2022), a level III study, focused on using the WristWidget for patients with TFCC lesions with outcomes measures focusing on weight-bearing capacity. Results of this study found approximately a 60% increase in weight-bearing capacity using the WristWidget compared to without. Barlow (2016), a level IV single-subject casre report, utilized the WristWidget to examine weight-bearing tolerance and found an 80% increase in weight-bearing tolerance using with the WristWidget compared to without.

Conclusion: The findings from this literature review suggest evidence to support the use of prefabricated orthoses for conservative management of TFCC injuries is limited, but suppportive for improving weightbearing capacity. Studies primarily focused on weightbearing capacity with a limited focus on comparisons of function pre and post use of the prefabricated orthosis. The WristWidget was the only prefabricated orthosis used in these three studies, but favorable results were found for the use of this prefabricated orthosis for weightbearing capacity compared to not using the WristWidget. Practitioners should consider utilizing this prefabricated orthosis for clients with pain or limited ability to weightbear on their upper extremity following a TFCC injury. Further studies are needed to support the use of prefabricated orthoses for functional outcomes.

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TITLE: PREFABRICATED ORTHOSES FOR THE CONSERVATIVE MANAGEMENT OF TRIANGULAR FIBROCARTILAGE COMPLEX INJURIES: A LITERATURE REVIEW

CONTROL ID: 4124087

TITLE: BIOPSYCHOSOCIAL EDUCATION FOR INDIVIDUALS WITH SUBACUTE AND CHRONIC PAIN IN THE HAND, WRIST, OR ELBOW: A TELEHEALTH PILOT STUDY

AUTHORS (FIRST NAME INITIAL, LAST NAME): A. J. De Maagd[1], G. K. Lee[1]

INSTITUTIONS (ALL):

1. Michigan State University, East Lansing, MI, United States.

ABSTRACT BODY:

Purpose: Despite best practices in treating hand, wrist, or elbow injuries, some individuals continue to have pain beyond the expected recovery period. Rehabilitation professionals have successfully treated individuals with lingering pain from musculoskeletal injuries using pain neuroscience education (PNE). However, literature involving the use of PNE for individuals with distal upper extremity pain is lacking. This study investigated whether a PNE program with solution-focused counseling techniques would reduce pain and improve outcomes in individuals following elbow, wrist, and hand injuries.

Methods: Ten individuals aged 18 years and older (M= 46.6, SD=13.83) living in the United States with subacute or chronic pain in the distal upper extremities and receiving hand therapy services were recruited using a snowball sampling technique with assistance from American Society of Hand Therapists and Michigan Occupational Therapy Association members. A power analysis using G*Power 3.1 predicted that ten participants would achieve 80% power with a 95% confidence interval. Multiple modifications occurred in this study, expanding the population and reducing the number of variables studied due to issues with recruitment during the COVID-19 pandemic. Participants completed four weekly telehealth sessions lasting 30 to 60 minutes. This PNE program was a pre-experimental design in which all individuals received the intervention.

A one-way repeated measures multivariate analysis of variance (MANOVA) was selected to determine the effects of the pain neuroscience educational program. Six dependent variables were studied: perceived pain using the Pain Numeric Rating Scale (NRS), pain catastrophizing using the Pain Catastrophizing Scale (PCS), kinesiophobia using the Tampa Scale for Kinesiophobia –11 (TSK-11), and function and social participation using the Quick Disabilities of the Arm, Shoulder, and Hand Outcome Measure (QuickDASH) and the Canadian Occupational Performance Measure (COPM). Participants improved from pretest to posttest in all variables in the primary analysis except for QuickDASH. Data on the difference between participants from pretest to posttest on the combined variables using the one-way repeated measures MANOVA were not reported because all assumptions were not met during post-hoc analysis. Therefore, univariate analyses with a Bonferroni correction assessed differences from pretest to posttest on the individual variables.

Results: Three of the six variables were statistically and clinically significant with large effect sizes. These variables include pain ($F(1, 9) = 13.048$, $p = .006$; $n_p^2 = .592$); kinesiophobia ($F(1, 9) = 14.188$, $p = .004$; $n_p^2 = .612$) as well as satisfaction with occupational performance ($F(1, 9) = 14.656$, $p = .004$; $n_p^2 = .620$). Pain catastrophizing ($F(1, 9) = 1.858$, $p = .206$; $n_p^2 = 0.171$) and occupational performance ($F(1, 9) = 4.279$, $p= .069$; $n_p^2 = 0.322$) achieved large effect sizes but were underpowered to achieve statistical significance at the 95% confidence interval. Function and social participation measured by the QuickDASH were neither statistically significant nor clinically significant ($F(1, 9) =.005$, $p = .943$; $= n_p^2 0.001$).

Exploratory analyses indicated additional positive outcomes. Participants achieved a statistically significant improvement in mood from pretest to posttest with a large effect size ($F(1,9) = 5.335$, $p =.046$; $n_p^2 = .372$). A strong working alliance between the researcher and participants was also achieved (goals, M = 18.5, 95% CI [17.14, 19.86]; tasks, M = 17.2, 95% CI [15.45, 18.95]; and bond, M = 18.7, 95% CI [17.69, 19.71]). Furthermore, participants reported that the brief PNE program with solution-focused counseling techniques was at least moderately to extremely effective at reducing their pain, and they were at least moderately to extremely satisfied with the intervention. Finally, participants also reported reduced usage of medication to treat pain from pretest to posttest.

Conclusion: This study's findings are significant, demonstrating that a brief PNE program with solution-focused counseling techniques in a telehealth format can lead to meaningful changes in pain and related outcomes for individuals with subacute and chronic pain in the distal upper extremities. Moreover, this pilot study provides effect sizes for assessment tools to study pain using PNE in the distal upper extremity population, which can significantly enhance the design and power of future randomized controlled trials.

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TABLE:

Note: The PDF table below is only an approximation of the HTML content and may not match formatting exactly.

Demographic Variables of Participants (N=10)		
Variable	.	n (%)

Gender	.	.
.	Female	5 (50%)
.	Male	5 (50%)
Race/Ethnicity	.	.
.	Caucasian	8 (80%)
.	African American	1 (10%)
.	Other	1 (10%)
Age	.	.
.	18-27	1 (10%)
.	28-37	3 (30%)
.	38-47	0 (0%)
.	48-57	3 (30%)
.	58-67	3 (30%)
State	.	.
.	California	4 (40%)
.	Michigan	3 (30%)
.	Florida	1 (10%)
.	Washington	1 (10%)
.	Wisconsin	1 (10%)
Education	.	.
.	Some college	1 (10%)
.	Associate's degree	1 (10%)
.	Bachelor's degree	4 (40%)
.	Master's degree	2 (20%)

.	Doctorate	2 (20%)
Employment	.	.
.	Employed	8 (80%)
.	Unemployed	2 (20%)

Profile on Individual Participants, Relevant Pain-related Variables, and Studied Variables							
Injury	Pain (pre, post)	PCS (pre, post)	TSK-11 (pre, post)	QDASH (pre, post)	COPM-Performance (pre, post)	COPM-Satisfaction (pre, post)	Mood (pre, post)
Hand pain	3, 0	10, 2	20, 15	22.5, 7.5	5.2, 7.6	3.4, 7.2	4, 9
CRPS with ganglion cyst	8, 7	33, 24	27, 20	90.9, 79.5	3.0, 4.2	1.6, 2.4	5, 8
Epicondylitis and cubital tunnel	4, 4	36, 39	26, 28	56.8, 54.5	5.3, 6.3	6, 6.3	2, 7
Torn carpal ligament*	3, 1	8, 8	19, 17	13.6, 27.3	4.6, 2.6	5.2, 7.2	8, 8
CRPS with distal radius fracture*	2,3	7, 11	23, 19	22.7, 20.5	2.8, 5.3	1.3, 4.3	8, 5
CRPS with fingernail injury*	2, 0	16, 14	21, 18	43.2, 61.4	3.4, 3.2	1.8, 2.8	5, 7
Finger amputation*	8, 5	32, 30	39, 29	77.3, 72.8	3.4, 7.2	3.6, 8.4	6, 10

Torn carpal ligament, lateral epicondylitis*	2, 0	13, 15	23, 21	13.6, 36.4	5.6, 4.8	5.4, 5.2	7, 7
Radius and ulna fractures with radial and ulnar nerve injuries	2, 0	19, 14	22, 18	25, 25	5.4, 6.8	4.4, 6	5, 8
Torn carpal ligaments	5, 0	4, 2	17, 14	20.5, 4.5	2, 8.4	3.5, 8.2	10, 10
Note: * indicates complications occurring during the intervention.							

TABLE FOOTER:
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TABLE TITLE: Demographic Variables of Participants (N=10)
Profile on Individual Participants, Relevant Pain-related Variables, and Studied Variables
TITLE: BIOPSYCHOSOCIAL EDUCATION FOR INDIVIDUALS WITH SUBACUTE AND CHRONIC PAIN IN THE HAND, WRIST, OR ELBOW: A TELEHEALTH PILOT STUDY

CONTROL ID: 4124098
TITLE: CRITICAL APPRAISAL PAPER: “SENSORY INTERVENTIONS ON MOTOR FUNCTION, ACTIVITIES OF DAILY LIVING, AND SPASTICITY OF THE UPPER LIMB IN PEOPLE WITH STROKE: A RANDOMIZED CLINICAL TRIAL”
AUTHORS (FIRST NAME INITIAL, LAST NAME): L. Hirst[1], S. Doerrer[1]
INSTITUTIONS (ALL):
1. OT, The George Washington University Department of Health Human Function and Rehabilitation Sciences, Washington, DC, United States.
ABSTRACT BODY:
Purpose: The purpose of this single-blind randomized controlled trial was to understand the effect of exteroceptive and proprioceptive stimulations on motor function, spasticity of the upper limb, and activities of daily living in chronic phase post-stoke patients. This study is a level 1B.

Some of the most common abnormalities OTs address in these patients, is impaired muscular coordination and pain that impacts range of motion (ROM), and can cause permanent deformity in the UE. One of the areas that isn’t typically considered in rehabilitation programs, but is another common abnormality that reduces quality of movement and activity in the affected side, is sensory deficit. This can cause reduced feedback from objects, weakness in fine motor and manipulation skills, and decreases the use of the affected limb. Results of this study concluded that the use of exteroceptive and proprioceptive stimulation are effective techniques for OTs to improve motor function, ADL participation, and spasticity in chronic stroke patients. These interventions are inexpensive, noninvasive, and easy to perform, so can be easily implemented into conventional therapy practice in any setting.
Methods: Convenience sampling was used to recruit N=60 who were referred to the Red Crescent Clinic of Isfashan Province in Iran. N=30 were randomly allocated into both an intervention and control group by encoded envelope.
Inclusion Criteria
Adults 50+ y/o who had experienced one stroke, were in the chronic phase, had the ability to detect the 4.31 monofilament in their fingers, were a Brunnstrom’s Stages of Stroke Recovery stage 4 or higher, and had the cognitive ability to understand instructions.
Group 1: Intervention Group
N=30 received exteroceptive and proprioceptive stimulations, in addition to convention OT interventions. An OT performed these interventions, as well as those for the control group, at the clinic for 6 weeks, 4x a week, in 45min sessions.
- Exteroceptive stimulations were applied to the C6, C7, and C8 dermatomes to stimulate elbow and wrist extensor sensory nerves in the superficial layer of the skin, normalizing tone and motor development: fast brushing (6min-30s on, 1min off), icing (3 fast stimulations 2-3 times, for 5min), and stretch pressure (3min), with a 3min rest period between each technique.
- Proprioceptive stimulations were used to activate muscle spindles, tendons, and joints to increase movement and control over motor response in the UEs: 10min of weight bearing and heavy joint compression in the side-sitting position for 5min and in quadruped for 5min. Stretch pressure was then performed for 5min (3s on, 3s off), wherein the pads of the thumb, index, and middle fingers were placed on the corresponding dermatome and pressed together.
Group 2: Control Group
N=30 received conventional OT interventions: exercises for strengthening and improving UE ROM and fine movement.
Results: Evaluated 3x- before beginning the intervention, at week 3, and at week 6, by an independent OT blinded to group
allocations and interventions
- Fugl-Meyer Assessment (FMA): Motor function; article reports high intrarater and interrater reliability
- Barthel Index (BI): Independence in ADL performance; article reports sufficient validity and reliability
- Modified Ashworth Scale (MAS): Muscle tone/spasticity; article reports excellent validity and reliability

A homogeneity data analysis and independent t-tests ($p<0.05$) were performed, which found the same distribution of age and duration post-stroke and no statistical difference between groups for any outcome measure at baseline; FMA:

p=0.7, BI: p=0.941, MAS: p=0.1
- FMA: Results are statistically significant, suggesting that exteroceptive and proprioceptive stimulations together, did improve motor function of the UE- Week 3: p=0.000 & Cohen's d (d) effect size= 0.81; Week 6: p=0.000 & d=0.73
- BI: Results are statistically significant, indicating the interventions did improve ADL performance- Week 3: p=0.000 & d=0.74; Week 6: p=0.000 & d=0.55
- MAS: Results are statistically significant, demonstrating the interventions were successful in decreasing UE spasticity- Week 3: P=0.001 and d=-0.43; Week 6: P=0.002 and d=-0.43
Conclusion: Limitations- Focused only on UE, Small sample size, No follow-up, no exclusion criteria was listed.

This was the 1st study that used exteroceptive and proprioceptive stimulations together to measure motor function, ADL performance, and spasticity. No statistical difference was found between groups at baseline for any outcome measure or variable; however, after the 3rd and 6th week of interventions, participants motor function, ADL performance, and spasticity of the UE improved compared to the control group. Effect sizes for all measures also demonstrated the strong relationship between variables. Despite these evidential conclusions, it is recommended that practitioners additionally reference similar studies which have found similar outcomes.
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TITLE: CRITICAL APPRAISAL PAPER: "SENSORY INTERVENTIONS ON MOTOR FUNCTION, ACTIVITIES OF DAILY LIVING, AND SPASTICITY OF THE UPPER LIMB IN PEOPLE WITH STROKE: A RANDOMIZED CLINICAL TRIAL"

CONTROL ID: 4124143
TITLE: THE EFFICACY OF A VERSATILE CUSTOM ORTHOSIS DESIGNED FOR THE STIFF HAND: A CLINICAL CASE STUDY
AUTHORS (FIRST NAME INITIAL, LAST NAME): C. Eddow[1]
INSTITUTIONS (ALL):
1. Physical Therapy Education, Western University of Health Sciences, Pomona, CA, United States.
ABSTRACT BODY:
Purpose: Stiffness and loss of motion of the entire hand, regardless of involved joint, is a common sequela of hand pathologies, injuries, and surgical interventions due the associated trauma and immobilization of the region.
Many techniques have been developed to address stiffness of larger joints including dynamic and static progressive methods
Because of the complexity of the hand, protocols addressing individual joints are impractical. Because the hand has multiple joints, regional stiffness and loss of motion are a common sequlae in hand pathologies and injuries regardless of of the structures involved due to widespread edema, inflammation, and fibroplasia. Treating individual joints with either dynamic or static-progressive strategies is not practical when treating the multiple joints of the hand.
The purpose of this clinical case study was to design a versatile static-progressive orthosis that could address multiple joint restrictions in the stiff hand to promote functional range of motion and the ability to perform a functional grasp following traumatic metacarpal injury and ray resection.
The research question is: Will a multifunctional custom orthosis be an effective and efficient method for addressing hand stiffness?
Methods: The purpose of this retrospective case study was to examine the efficacy of a versatile custom orthosis designed by the investigator* to address multiple joint stiffness in the hand of a 61 year-old patient who had suffered trauma to her left ring finger and undergone surgical intervention including 4th ray resection.
The patient presented with marked stiffness of all joints of the involved hand resulting in significant functional impairments.
A traditional dynamic splint was prescribed and found to be impractical to address the multiple contractures.
*Design patent pending
Procedure
A multi-component thermoplastic shell was fabricated that was able to differentially isolate the DIP's, PIP's and MCP's with concurrent static-progressive finger straps applied sequentially to each of the joints based on the patient's tolerance. The patient was to apply the orthosis 3 times daily isolating the DIP's, PIP's, and MCP's by changing a block component isolating each segment.
Measurements were taken weekly over a period of 6 weeks.
Results: The results of the study were significant for a composite improvement in finger motion allowing the subject to form a functional grasp.
Primary remaining impairment was power gripping due to inability to fully close the hand.
Conclusion: The outcomes of this study provide an efficient and cost-effective alternative for therapists treating hand patients with multiple joint involvement.
Results suggest investigations with larger populations of patients with hand injuries be conducted to further assess the value of this intervention.
Purpose: Stiffness and loss of motion of the entire hand, regardless of involved joint, is a common sequela of hand pathologies, injuries, and surgical interventions due the associated trauma and immobilization of the region.
Many techniques have been developed to address stiffness of larger joints including dynamic and static progressive methods
Because of the complexity of the hand, protocols addressing individual joints are impractical. Because the hand has multiple joints, regional stiffness and loss of motion are a common sequlae in hand pathologies and injuries regardless of of the structures involved due to widespread edema, inflammation, and fibroplasia. Treating individual joints with either dynamic or static-progressive strategies is not practical when treating the multiple joints of the hand.
The purpose of this clinical case study was to design a versatile static-progressive orthosis that could address multiple joint restrictions in the stiff hand to promote functional range of motion and the ability to perform a functional grasp following traumatic metacarpal injury and ray resection.

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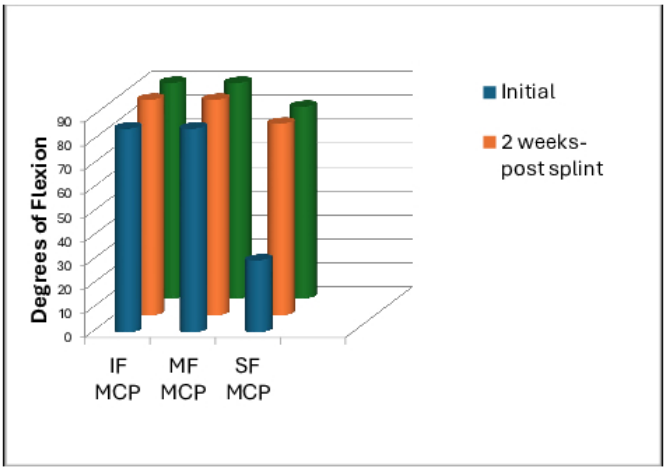
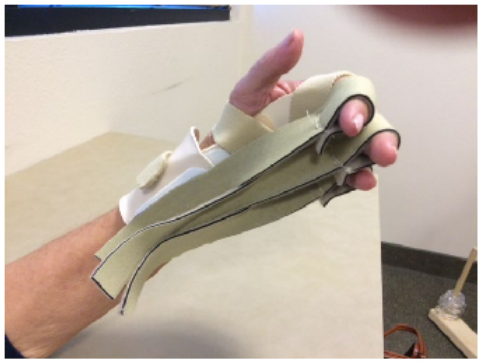
Results suggest investigations with larger populations of patients with hand injuries be conducted to further assess the value of this intervention.



Results of MCP flexion progress



Static progressive orthosis composite PIP flexion

IMAGE CAPTION: Results of MCP flexion progress Static progressive orthosis composite PIP flexion
(no table selected)

TITLE: THE EFFICACY OF A VERSATILE CUSTOM ORTHOSIS DESIGNED FOR THE STIFF HAND: A CLINICAL CASE STUDY

CONTROL ID: 4124149

TITLE: ESTABLISHING POPULATION NORMS FOR THE MACHAND PERFORMANCE ASSESSMENT 2.0: A CLINICAL MEASUREMENT STUDY

AUTHORS (FIRST NAME INITIAL, LAST NAME): B. Nolan-Cairns[1], A. Kanotra[1], Z. Edger-Lacoursiere[2], C. Su[3], H. Nguyen[3], E. Zheng[3], M. Li[3], T. Packham[1]

INSTITUTIONS (ALL):

1. School of Rehabilitation Science, McMaster University, Hamilton, ON, Canada.
2. School of Physiotherapy and Occupational Therapy, McGill University, Montreal, QC, Canada.
3. McMaster University, Hamilton, ON, Canada.

ABSTRACT BODY:

Purpose: The MacHAND Performance Assessment (MPA) is an outcome measure evaluating an individual's ability to complete fine and gross motor upper limb tasks. These tasks focus on different grasp and pinching patterns with a combination of timed and untimed activities. While this outcome measure has been in use for many years, there is a lack of evidence on its validity for specific clinical populations and normative data has not been established. Recent work at McGill University updated the MPA (now MPA 2.0) and conduct psychometric testing of a short, French form of the MPA 2.0 (MPA-SF) for adults who have sustained hand burns. To complement the work being done at McGill, this study aimed to obtain normative data in healthy adults completing the MPA 2.0. The creators of the MPA assumed that a score of 100 on the MPA indicated that a participant had no difficulty with any of the 20 tasks, thus has "normal" hand function. Therefore, this research will test this assumption of whether a score of 100 is typical in a healthy adult population. Our research questions were: what is the mean score and standard deviation of healthy participants on the MPA 2.0? What is the relationship between MPA 2.0 scores and PROMIS Upper Limb Item Bank tranformed scores or grip strength? How do these differ for MPA-SF scores?

Methods: We recruited healthy adult volunteers, defined as persons who do not report any recent hand or arm injuries, and/or who do not report persistent pain or disability in their upper limbs due to past injuries or chronic conditions, to participate in a cross-sectional study. After giving informed consent, participants were evaluated using the MPA 2.0, following standardized instructions for administration of each task. Because data collection sometimes had time constraints, some participants only performed the assessment with their right hand. Items were administered in a randomized order, to permit comparison with the short form by controlling for any order effect. We also asked participants to complete the full PROMIS upper limb item bank (20 items), transforming the score to a percentage metric and measured grip strength following standardized recommendations for clinical assessment. Descriptive statistics, and Pearson's correlations were calculated to address our research questions. We hypothesized that the MPA 2.0 would demonstrate strong positive correlation (r>0.8) to PROMIS transformed scores and moderate positive correlations (0.6 -0.8) to grip strength.

Results: To date, we have tested 101 unique participants and 134 hands. Participants are largely female (73%) with an average age of 25 years (range 16-68). Scores on the PROMIS item bank ranged from 88.75 to 100%, with 73% of persons scoring themselves at 100%. A past history of injury was not associated with a score of less than 100 (p=0.67 for Fisher's exact test). Scores on the MPA 2.0 ranged from 93 to 100 with a mean score of 97.6: only 4.5% of participants achieved a perfect score of 100/100. Items with the lowest mean scores were fastening a nut onto a bolt, the 6-hole peg test (both of which were timed), and the buttoning task (see Figure 1). Observations related to this were the interference of long artificial fingernails, and an apparent lack of familiarity with the nut & bolt assembly. All participants received perfect scores on the tasks of hammering [power grip], opening a jar [spherical grasp], inserting and removing a plug [lateral pinch], lifting a full can of soda to simulate drinking [cylindrical grasp], and lifting a weighted plate [lumbrical grasp]. PROMIS scores demonstrated low positive correlation to MPA 2.0 total scores (r=0.19). Grip strength demonstrated a slight negative correlation to MPA 2.0 total scores for the same hand (r=-0.20).

Conclusion: The results from this study will provide health professionals with preliminary estimates for comparing MPA 2.0 results between healthy and patient populations. Moving forward, targeted recruitment of adults between the ages of 30 and 80 and equal numbers of males and females is necessary to provide robust estimates for these age groups. The failure to see the hypothesized relationships in this preliminary work will also inform future studies of validity.

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combination of timed and untimed activities. While this outcome measure has been in use for many years, there is a lack of evidence on its validity for specific clinical populations and normative data has not been established. Recent work at McGill University updated the MPA (now MPA 2.0) and conduct psychometric testing of a short, French form of the MPA 2.0 (MPA-SF) for adults who have sustained hand burns. To complement the work being done at McGill, this study aimed to obtain normative data in healthy adults completing the MPA 2.0. The creators of the MPA assumed that a score of 100 on the MPA indicated that a participant had no difficulty with any of the 20 tasks, thus has “normal” hand function. Therefore, this research will test this assumption of whether a score of 100 is typical in a healthy adult population. Our research questions were: what is the mean score and standard deviation of healthy participants on the MPA 2.0? What is the relationship between MPA 2.0 scores and PROMIS Upper Limb Item Bank tranformed scores or grip strength? How do these differ for MPA-SF scores?

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Figure 1. The buttoning task

IMAGE CAPTION: Figure 1. The buttoning task
(no table selected)
TITLE: ESTABLISHING POPULATION NORMS FOR THE MACHAND PERFORMANCE ASSESSMENT 2.0: A CLINICAL MEASUREMENT STUDY

CONTROL ID: 4124181

TITLE: RETHINKING REPORTING ON RETURN TO WORK FOR UPPER EXTREMITY PATIENTS: DISCREPENCIES IN RATING WORK DEMAND

AUTHORS (FIRST NAME INITIAL, LAST NAME): J. T. Nguyen[2], G. Weinstock-Zlotnick[1]

INSTITUTIONS (ALL):

1. Hand and Upper Extremity Center, Hospital for Special Surgery, Teaneck, NJ, United States.
2. Hospital for Special Surgery, New York, NY, United States.

ABSTRACT BODY:

Purpose: Return to work (RTW) after injury is a key goal. Stratified estimates for RTW by job type/exertion levels can be helpful in shaping patient expectations. However, job categories described in the literature are either broad (ie blue collar/white collar or light/medium/heavy) and/or describe overall force needed rather than consider only the upper extremity force needed. Ability to report on upper extremity-specific job categories is a precursor to analyzing which factors contribute to RTW for each job category. This study explores two patient rated metrics to describe upper extremity force required on a typical work day.

Methods: A survey questionnaire was developed integrating categories from the United States Department of Labor, categories used in existing peer-reviewed studies, and feedback from hand surgeons and hand therapists. This convenience sample included all patients that were sent to a hospital-based, outpatient, hand therapy walk-in service, ages 18 and older, employed at the time of injury to a hand/wrist/elbow, and English speaking. Participants were excluded if they had a polytrauma. Participants were emailed a recruitment letter with a link to a questionnaire posing questions about return to work, injury information, and demographic information. This study was IRB approved and data were collected via REDCap. Participants were asked to state their occupation. Participants were then asked to describe the arm or hand strength typically needed to perform their job using one of five categories: (sedentary work- up to 10 lbs. occasionally; light work- up to 20 lbs. occasionally, or 10 lbs. frequently; medium work- 20-50 lbs. occasionally, 10-25 lbs. frequently, or up to 10 lbs. constantly; heavy work- 50-100 lbs. occasionally, 25-50 lbs. frequently, or 10-20 lbs. constantly; very heavy work- over 100 lbs. occasionally, over 50 lbs. frequently, or over 20 lbs. constantly) as well as using a scale from 0 (light desk work) to 10 (heavy physical work). Categories were grouped into sedentary/light and medium/heavy/very heavy. Means were calculated for the categories and the 0-10 scale and then compared to determine whether participants scored the work-related upper extremity demand consistently.

Results: Fifty-two participants with a range of upper extremity injuries responded to the survey questionnaire. T-test analysis found a significant difference (2.69 vs. 6.00, $P<0.001$) between the mean sedentary/light (36 participants) versus medium/heavy/very heavy categories (16 participants) and the 0-10 rating scale. While many participants responded similarly on both scales, there were several in each category that were discordant. Nearly 70% of participants in the sedentary/light group rated their job as a 3 or less on a 0-10 scale, yet 11/36 participants selected 4, 5, 6, 7, or 10 level of force needed. Conversely, the medium/heavy/very heavy workers showed a more evenly distributed group, with over 80% of participants rating a 4/10 or higher and a mean centering around 6. Yet, like the sedentary/light worker group, there was inconsistency between the scales where one participant indicated the arm/hand demand on an average day was a 3/10 and another 0/10. Occupations that were scored inconsistently (i.e. more exertive category yet lower number on 0-10 scale or vice versa) included: teacher, fashion stylist, relationship manager for a tech company, scientist, office manager, and crossing guard.

Crosstab calculation demonstrated a significant difference in percentages of scores across the work categories ($P=0.020$). There was a significant difference in the breakdown between sedentary/light versus medium/heavy/very heavy workers. For the score of 1, the sedentary/light group was a higher percentage for that score. For the 5 and 8 score, the medium/heavy worker was higher.

Conclusion: Categorizing typical upper extremity exertion in the context of injury at one's job appears to be more complex than anticipated. While a 5-point scale and the 0-10 scale show some consistency in how participants assessed their work type, there was still a wide distribution of scores that would improve the discriminatory attributes of both scales. By taking into account the actual occupation and understanding the potential differences of the duties of that occupation, health care professionals can better understand why these scores may act in discordant ways. These preliminary findings indicate that categorizing the strength and force typically needed at a patient's job for RTW research requires a nuanced approach. One dimensional ratings or groupings likely will fall short in conveying the range of tasks required in light or heavy work, even within the same occupation.

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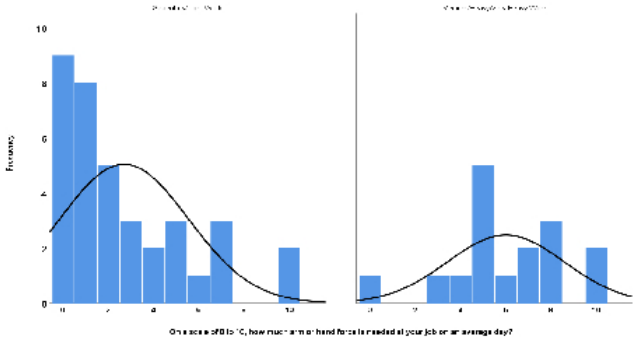
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IMAGE CAPTION:
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TITLE: RETHINKING REPORTING ON RETURN TO WORK FOR UPPER EXTREMITY PATIENTS: DISCREPENCIES IN RATING WORK DEMAND

CONTROL ID: 4124223
TITLE: GRADED MOTOR IMAGERY IN COMPEX HAND REHABILITATION
AUTHORS (FIRST NAME INITIAL, LAST NAME): C. Eddow[1]
INSTITUTIONS (ALL):
1. Physical Therapy, Western University of Health Sciences, Pomona, CA, United States.
ABSTRACT BODY:
Purpose: Complex hand injuries result in trauma to many integral anatomic structures including tendons, nerves, arteries, and associated musculature. The potential loss of function and quality of life associated with such injuries is substantial. Effective rehabilitation of these injuries is imperative to the restoration of function and return to optimal quality of life. Although multiple research investigations have been conducted using graded motor imagery with mirror box therapy, no identifiable evidence was identified to determine the efficacy of this approach for complex hand injuries. The purpose of this retrospective case study was to examine the efficacy of graded motor imagery using mirror box therapy to promote fine motor and prehensile function in the reconstructed hand of a 28 year-old male patient who had suffered near amputation at the Zone IV level while using a skill saw.
Methods: Procedure
Functional measures were assessed using the Upper Extremity Functional Index (UEFI) and Grip Strength with a Jamar grip dynamometer
The mirror box was fabricated by the investigator using components from a local home improvement store
The subject performed fine motor manipulation with pegs and pinching activities using a clothes pin in the uninvolved hand and a small Nerf ball in the involved hand for enhanced tactile input. Gripping activities were later incorporated using resistive sponge balls and particle manipulation was used simultaneously with both hands for tactile input.
Results: The subject responded positively with an improvement in perceived functional participation using the Upper Extremity Functional Index questionnaire from 0% initially to 24% (based on reported score on an 80 point scale) Grip improved from 0 psi to 10 psi. The subject also exhibited a highly positive perspective regarding both hand function and his attitude toward his involved limb which he had previously chosen to deny as evidenced in his qualitative outcomes and quantitative interview responses.
Conclusion: The implementation of graded motor imagery rehabilitation in the care of patients who have suffered traumatic hand injuries and have undergone extensive surgical reconstruction is a valuable intervention in restoring fine motor and light gross motor function. Prior to this Case Study, no investigations had been conducted to examine the efficacy of graded motor imagery in complex hand injuries requiring reconstruction.
The outcomes of this Case Study support the implementation of mirror box therapy for this patient population. Further investigation in regard to this treatment approach would benefit this population.
Purpose: Complex hand injuries result in trauma to many integral anatomic structures including tendons, nerves, arteries, and associated musculature. The potential loss of function and quality of life associated with such injuries is substantial. Effective rehabilitation of these injuries is imperative to the restoration of function and return to optimal quality of life. Although multiple research investigations have been conducted using graded motor imagery with mirror box therapy, no identifiable evidence was identified to determine the efficacy of this approach for complex hand injuries. The purpose of this retrospective case study was to examine the efficacy of graded motor imagery using mirror box therapy to promote fine motor and prehensile function in the reconstructed hand of a 28 year-old male patient who had suffered near amputation at the Zone IV level while using a skill saw.
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outcomes and quantitative interview responses.

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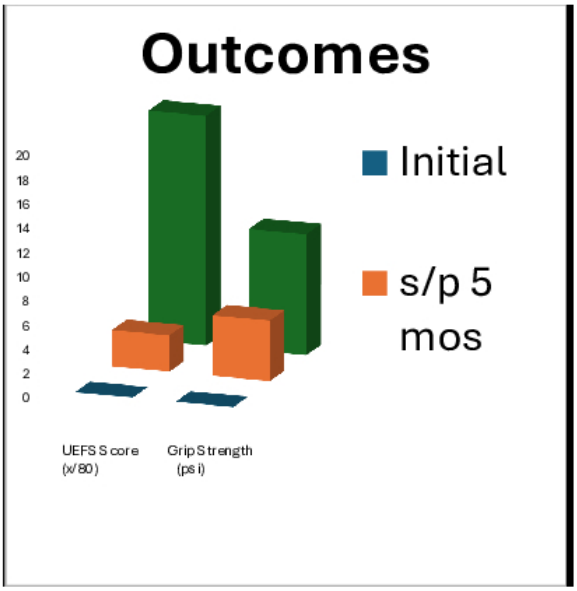
Outcomes
20
18
16
14
12
10
8
6
4
2
0
Initial
s/p 5 mos
UEFS Score (x/80)
Grip Strength (psi)

IMAGE CAPTION:
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TITLE: GRADED MOTOR IMAGERY IN COMPEX HAND REHABILITATION

CONTROL ID: 4124234
TITLE: PREOPERATIVE EDEMA MANAGEMENT OF THE BURNED HAND
AUTHORS (FIRST NAME INITIAL, LAST NAME): J. X. Lucio[1]
INSTITUTIONS (ALL):
1. Burn Therapy, University of Utah Health, Herriman, UT, United States.
ABSTRACT BODY:
Purpose: The purpose of this study is to identify the benefits for preoperative edema management of the burned hand. Current practices for preoperative edema management have led to unsatisfactory edema management, prolonged immobilization and range of motion restrictions.
Methods: Upon admission a comprehensive hand assessment is completed with preoperative edema management beginning within 24 hours of admission. Elevation is managed with the hand consistently above the bedrail. A self adhesive compression dressing is applied to the burned hand and changed every other day. Figure of 8 measurements are taken during dressing changes. Once edema has stabilized, a maintenance compression glove is applied until surgery.
Results: 10 patients (9 males, 1 female) were included in this study. 18 total hands were studied with 16 hands requiring skin grafting. All subjects were right hand dominant. Ages arranged from 17-74 years. Burn size ranged from 1-24% total body surface (TBSA) area with 6 patients having less than 10% TBSA. No hand infections were noted. Use of self adhesive compression dressing both preoperatively and postoperatively yielded decreased edema of the hand allowing for optimal hand results. By discharge, 12 hands (67%) were able to make a full fist, 4 hands (22%) were unable and 2 hands (11%) had range of motion limitations due to early discharge with follow up care in outpatient clinic.
Conclusion: Application of a self adhesive compression dressing in combination with consistent hand elevation within 24 hours of admission improves edema and may expedite return of full composite range of motion in adults with hand burns requiring surgery.
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	RIGHT	LEFT
ADMISSION	50.2 (45.5 – 54.5)	49.4 (46.5 – 56.5)
OR	47.8 (41.0 – 52.2)	48.4 (43.0 – 53.4)
Change from admission to OR	-2.4 (-5%)	-1.1 (-2%)
POSTOP	46.2 (40.5 – 51.2)	46.0 (41.0 – 50.5)
Change from admission to postop	-3.9 (-8%)	-3.5 (-7%)

IMAGE CAPTION:
(no table selected)
TITLE: PREOPERATIVE EDEMA MANAGEMENT OF THE BURNED HAND

CONTROL ID: 4124237
TITLE: PAVING THE WAY FOR LARGE-SCALE HAND THERAPY RESEARCH: A RESEARCHER NETWORK ANALYSIS
AUTHORS (FIRST NAME INITIAL, LAST NAME): K. Loomis[1], T. Khese[1], E. Lin[1], S. Roll[1]
INSTITUTIONS (ALL):
1. Chan Division of Occupational Science and Occupational Therapy, University of Southern California, Los Angeles, CA, United States.
ABSTRACT BODY:
Purpose: A growing community of hand therapy researchers is working toward improving care quality by facilitating inquiry into factors impacting daily practice. Importantly, exploring relationships among patient biopsychosocial factors, real-world practice variations, and outcomes across the profession can inform initiatives to optimize practice efficiency and address diverse patient needs. Conducting research that explores these complex relationships will require large-scale, coordinated efforts among hand therapy researchers. Therefore, our study aimed to characterize and evaluate the current network of hand therapy researchers to (1) gain insight into the feasibility of large-scale collaborative research efforts and (2) identify avenues for knowledge diffusion and development.
Methods: Using published literature, we completed a social network analysis of hand therapy researchers. Individuals in the network were identified via author lists for research articles published in the top field-specific journals (Journal of Hand Therapy and Hand Therapy) from 1/2014 to 12/2023. To focus on individuals conducting active, well-developed hand therapy-relevant research, 546 articles were selected for inclusion from 753 full-length research articles based on the criteria of being data-driven (i.e., not reviews or commentaries) and involving live subjects. The final network was constructed from bidirectional connections between pairs of researchers co-authoring the included articles. These connections were weighted by the total number of collaborations.

The network was plotted and evaluated for structural characteristics and to identify influential individuals. At the network level, we assessed network size (total individuals, distance between individuals), density (number of observed connections vs. possible connections), degree centralization (how focused connections are on a small number of people), and components (isolated groups of collaborators). At the individual level, we assessed measures of centrality (influence), including degree (number of connections), betweenness (how often an individual lies on the shortest path between 2 other individuals), and closeness (the number of steps needed to reach other individuals). All network plots and analyses were performed using the igraph network analysis package for R statistical software.
Results: We identified 1,938 unique researchers from the included articles, with the number of researchers authoring individual articles ranging from 1 to 13. Most researchers (N=1,664; 86%) had only 1 publication; the most prolific researcher had 36 publications. Nine isolates, that is, individuals who only published single-author papers, were excluded. A total of 5,378 connections were identified between the remaining 1,929 researchers.

Graphically, the resulting network plot (FIGURE 1a) exhibits a decentralized and highly modular structure, though containing at least one densely and repeatedly connected core of researchers. The network density of 0.003 and degree centralization of 0.043 confirm this relatively sparse, decentralized structure. The mean direct path length between researchers traverses 3.8 inter-researcher connections (longest direct path: 9). The network is comprised of 263 components, including a range of 2 to 266 researchers (median: 5). The 2 largest components contain 340 (18%) of the network's researchers and appear to feature more highly weighted connections and centralized structures (FIGURE 1b). The 5 emergent components in a second tier each include 20 to 29 researchers (116 total; FIGURE 1c).

Individual researcher centrality measures are highly skewed (TABLE 1). Three individuals fall in the top 5 for both degree and betweenness, indicating they excel at both establishing and facilitating connections, and carry strong influence within the network. The two largest network components contain 5/5 of the top researchers for unweighted degree, 4/5 for weighted degree, and 5/5 for betweenness. The second tier of components contains 1/5 for weighted degree. Clearly, most of the power and brokering ability within the network is consolidated within a few individuals and groups. Interestingly, none of the top 5 researchers for closeness are within these 7 components, which may indicate a lack of efficiency among the networks most prominent groups.

Conclusion: Outside of a few core groups, hand therapy research is decentralized and primarily conducted at a low volume via small, siloed collaborations. While engaging the most prominent researchers will be essential to the success of future large-scale research efforts, targeting emerging second-tier and other moderately-sized groups may help spark greater collaboration across the network. Fostering connections between isolated groups is critical to promote efficient diffusion of knowledge and initiatives. These findings provide the foundation for expanded research exploring how researcher attributes (e.g., professional background) relate to network features.
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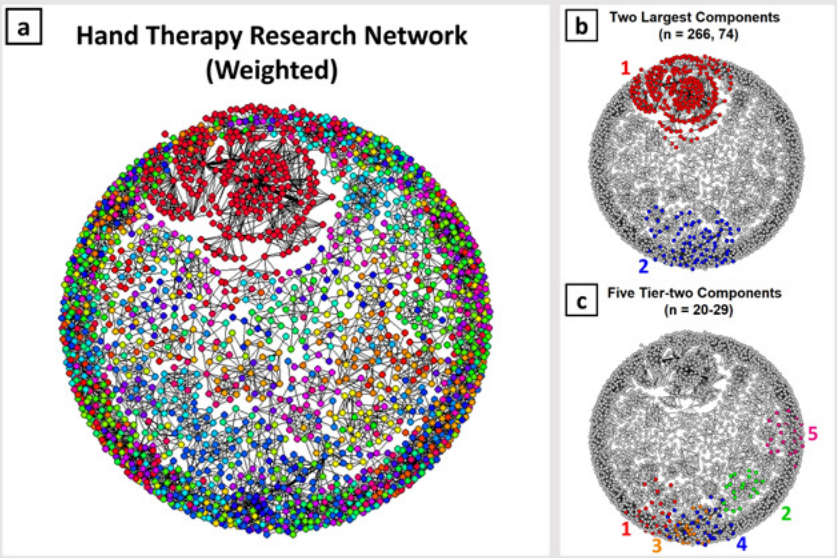

Figure 1. ***Hand Therapy Research Network.*** ***(a)*** *Network with weighted connections and colorized components.* ***(b)*** *Two largest components (1-2).* ***(c)*** *Five next largest components (1-5).*

IMAGE CAPTION:

TABLE:

Note: The PDF table below is only an approximation of the HTML content and may not match formatting exactly.

Table 1. Individual Centrality Measures	
Measure	Mean (median; range)
Degree (unweighted)	5.2 (5.0; 1 - 88)
Degree (weighted)	5.6 (5.0; 1 - 137)
Betweenness	60.5 (0.0; 0 - 24,404)
Closeness	0.167 (0.125; 0.001 – 1.000)
Note: degree and betweenness measures do not have an upper limit, while closeness ranges from 0 to 1.	

TABLE FOOTER: Note: degree and betweenness measures do not have an upper limit, while closeness ranges from 0 to 1.

TABLE TITLE: Table 1. Individual Centrality Measures

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CONTROL ID: 4124284

TITLE: ENHANCING PEDIATRIC GRIP STRENGTH ASSESSMENT: THE DEVELOPMENT AND PRELIMINARY EVALUATION OF A CHILD-FRIENDLY DYNAMOMETER

AUTHORS (FIRST NAME INITIAL, LAST NAME): R. Shanshal[2], D. Al-Sammak[2], T. Packham[1]

INSTITUTIONS (ALL):

1. School of Rehabilitation Science, McMaster University, Hamilton, ON, Canada.
2. iBiomed Engineering, McMaster University, Hamilton, ON, Canada.

ABSTRACT BODY:

Purpose: Pediatric grip strength assessment poses challenges to healthcare professionals due to the lack of validated tools for young clients, hindering their engagement in the assessment and impacting the accuracy of measurements. Current market offerings, such as industry-standard hydraulic dynamometers, are unsuitable for children due to their size, weight and lack of feedback, leading to skewed measurements and floor effects. We hypothesized that a right-sized measurement instrument with toy-like features and providing visual and auditory feedback would support maximum grip efforts in young children and older children who might otherwise have difficulty following instructions. this ongoing development study aims to address the challenge of assessing grip strength in pediatric populations through a comprehensive design-thinking approach.

Methods: Our core team of engineering students purposefully sampled multidisciplinary stakeholders who regularly take and use grip strength measurements to inform clinical decision-making . We sought to include pediatric health and musculoskeletal care professionals and researchers from a wide range of backgrounds including, but not limited to, occupational therapists, physiotherapists, physicians, researchers, and other rehabilitation specialists. Stakeholders were invited to participate in 30-minute virtual interviews using a semi-structured interview guide based on a priori assumptions regarding the problem validity, value proposition, and potential customer segments. If more time was needed to explore emerging ideas, a follow-up interview was requested and scheduled. The interviews, in turn, validated or invalidated the assumptions based on feedback that was provided to inform and refine the 3D-printed preliminary prototype of the device (figure 1).

Results: To date, we have interviewed 30 stakeholders. Fifteen were occupational therapists, 2 of which founded their own clinics, and 3 of which were assistant professors and clinician scientists. Five of the stakeholders were physiotherapists, 2 of which owned their own physiotherapy practice. The remaining 10 stakeholders came from medicine and child development disciplines, holding a variety of relevant positions such as Associate Professor in Pediatrics, Research Director in the Division of Plastic and Reconstructive Surgery, Rehabilitation Specialist, and Neuromuscular Specialist. Interviewing these professionals informed the device development process through co-design by using the stakeholders' feedback to guide iterative design. Through the interviews, a large number of stakeholders expressed enthusiasm for the prototype concept. They reported the device could address key challenges in grip strength assessment and endorsed its engaging, child-friendly design and intuitive use.

Conclusion: The prototype addresses the challenges of measuring grip strength in young children by providing a child-friendly, light weight, and engaging grip strength measurement tool. Shaped as a dinosaur, the device is seen as a toy or a friend by the child, ultimately encouraging active participation and understanding from the child. Drawing on design-thinking processes from engineering, we have leveraged interdisciplinary collaboration and co-design processes to develop a working prototype. Further refinement of the physical features and feedback elements, as well as demonstrating consistency and accuracy in measurement will support the uptake of this innovation in clinical practice.

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Figure 1. Preliminary prototype of the prototype device, constructed from 3D printing filament

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CONTROL ID: 4124287

TITLE: INTER-RATER RELIABILITY OF VIDEO BASED RANGE OF MOTION ASSESSMENTS IN POST-RECONSTRUCTION BRACHIAL PLEXUS PATIENTS

AUTHORS (FIRST NAME INITIAL, LAST NAME): S. DeMartini[1], E. Sane[1], D. Brogan[1], C. Dy[1]

INSTITUTIONS (ALL):

1. Orthopedics, Washington University in St. Louis School of Medicine, St. Louis, MO, United States.

ABSTRACT BODY:

Purpose: Brachial plexus injuries (BPI) are among the most devastating neurological pathologies faced by patients today. Post-reconstruction assessments of patient progression are reliant on in-person goniometric measurements, which can be time consuming and require both the patient and physician to be present. Furthermore, due to the complexity of these injuries, many patients are faced with long commutes to be evaluated by BPI experts. In an attempt to remove barriers to patient care, the purpose of this study was to evaluate the reliability of video-based upper extremity range of motion (ROM) assessments. Furthermore, the purpose of this study was to determine the feasibility of remote physician assessments of post-reconstruction BPI patients to improve patient access to care.

Methods: Eight post-reconstruction BPI patients were filmed in-office following their clinical visit using a 3-camera system of two laterally fixed cameras and one fixed front-facing camera. Patients performed 3 range of motion exercises: elbow flexion, forward shoulder flexion, and shoulder abduction. Patient footage was then evaluated by 8 brachial plexus reconstruction experts. Patient range of motion was first assessed visually, and then digitally using the ImageJ angle measurement tool. Data analysis was conducted using Shrout-Fleiss Intraclass 3 fixed set correlations to determine inter-rater reliability.

Results: Inter-rater reliability for elbow flexion was 80.1% for visual assessments and 96.0% for digital assessments. Forward shoulder flexion inter-rater reliability was 95.4% for visual assessments and 98.5% for digital assessments. Finally, visual assessments of shoulder abduction had an inter-rater reliability of 91.2% for visual assessments and 96.2% for digital assessments (Fig. 1).

Conclusion: Visual and digital evaluations of patient elbow flexion, shoulder flexion, and shoulder abduction were both highly reliable among brachial plexus experts. Shoulder ROM assessments on average had greater inter-rater reliability than elbow ROM assessments. Visual evaluations of patient ROM were less reliable than digital assessments with ImageJ for all 3 exercises. These results support the utilization of 2D video-based assessments of post-reconstruction BPI patients' ROM, potentially reducing the need for in-office visits to monitor patient progression. These results also create the opportunity for patient evaluations to occur more frequently at the convenience of both patient and provider.

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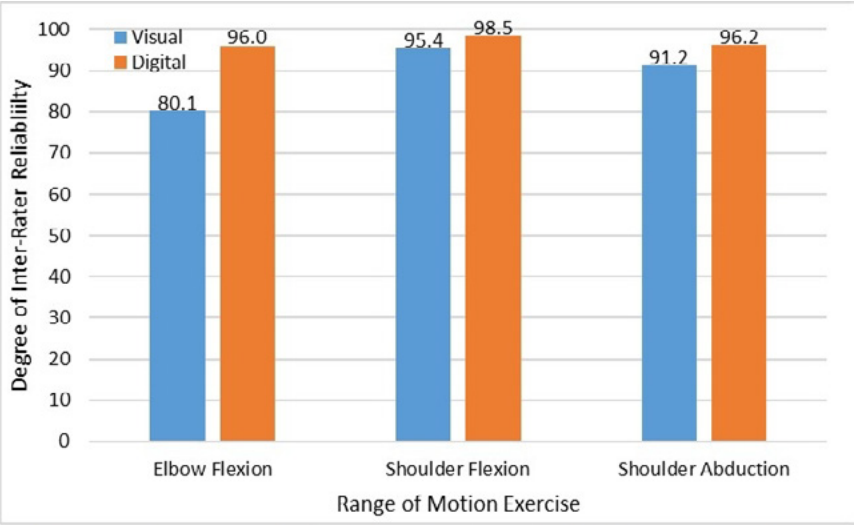

Figure 1. Inter-rater reliability of visual and digital 2D video-based assessments of range of motion exercises in post-reconstruction brachial plexus injury patients.

IMAGE CAPTION:
(no table selected)
TITLE: INTER-RATER RELIABILITY OF VIDEO BASED RANGE OF MOTION ASSESSMENTS IN POST-RECONSTRUCTION BRACHIAL PLEXUS PATIENTS

CONTROL ID: 4124317

TITLE: PERSPECTIVES AND PRACTICES REGARDING NERVE AND TENDON TRANSFER SURGERIES FOR TETRAPLEGIA: AN INTERNATIONAL SURVEY

AUTHORS (FIRST NAME INITIAL, LAST NAME): F. Laurent[1], P. K. Firouzbakht[2], A. Liao[1], J. Dengler[3], C. Kennedy[1], M. Berger[4], M. Botros[1], I. K. Fox[1]

INSTITUTIONS (ALL):

1. Plastic and Reconstructive Surgery, Washington University School of Medicine in St. Louis, St. Louis, MO, United States.
2. Division of Plastic and Reconstructive Surgery, St. Louis University School of Medicine, St. Louis, MO, United States.
3. Sunnybrook Health Sciences Centre, Toronto, ON, Canada.
4. ICORD, Vancouver, BC, Canada.

ABSTRACT BODY:

Purpose: Spinal cord injury (SCI) causes substantial disability and has an estimated worldwide prevalence of 20.6 million. Surgery can improve upper limb movement in people with cervical SCI, and includes traditional tendon and newer nerve transfers, The purpose of this study was to gain an updated international expert perspective on upper limb reconstruction in the context of these expanded treatment opportunities.

Methods: IRB approval was obtained. A 34-item survey was developed by a multidisciplinary group of clinicians and researchers in the United States and Canada. Questions were asked about demographics, experience, practice patterns, barriers to care and recommendations to improve access. Participants were recruited at the 2023 Tetrahand World Congress in Atlanta, GA, USA, and included experts across diverse fields including hand therapists, occupational therapists, physical therapists, surgeons and non-surgeon physicians and researchers.

Results: A total of 50 participants completed the survey. The participants self-identified primarily as surgeons (50%) and rehabilitative therapists (44%). The largest portion of respondents (48%) were from the United States, 14% were Canadian, and the remainder were from countries that included Australia, France, The Netherlands, New Zealand, Norway, Sweden and Switzerland. 50% of total respondents were surgeons and 44% of respondents were rehabilitative therapists. Nearly half (48%) of the respondents had more than 10 years of clinical experience, and 52% reported their clinical practice was comprised of caring for “a moderate amount”, “a lot”, or “all or almost all” individuals with spinal cord injury. The majority (90%) of participants reported that both nerve and tendon transfer surgeries were performed at their institutions.

Surveyed clinician experts recommended early surgery in order to both 1) better coordinate rehabilitation and 2) avoid the loss of opportunity for time-sensitive nerve transfer. However, some disadvantages to performing early upper limb surgery were also identified and included interruptions to 1) natural recovery and 2) rehabilitation. The majority of respondents (64%) reported that nerve or tendon transfer surgeries to improve upper limb movement in people with SCI were usually being performed within 12 months after the initial injury at their institutions. Many respondents (47%) felt these surgeries should be performed sooner, and 84% of noted that timing should be different for nerve compared to tendon transfer surgery.

Participants emphasized the importance of postoperative rehabilitation. Rehabilitation was more commonly delivered in an outpatient setting for nerve transfers. By contrast, rehabilitation for tendon transfers was more commonly delivered in the inpatient setting. A long duration of formal postoperative rehabilitation was recommended for both nerve and tendon transfer surgery.

Multiple factors impacting access to upper limb surgery were reported across study participants. Access to therapy (65%) and a lack of external support (70%) were substantially more likely than insurance, cost, or distance to impact access to surgery. Only the American and Canadian participants reported insurance and ability to pay as factors impacting access to surgery.

Participants reported additional factors that impacted access to postoperative rehabilitation. These factors included: logistics and insurance status. The impact of cost on access to rehabilitation therapy after surgery was reported only

by the American and Canadian participants.

Participants were also asked how to improve access to these surgeries. Specific factors included: 1) expanding knowledge of upper limb treatments in SCI (both for providers, and people with SCI), 2) improving facilities that specialize in this care and 3) training more clinicians who have synthesized knowledge of both upper limb treatment and SCI.

Conclusion: There are many factors that influence access to specialized upper limb reconstruction in a unique population such as those living with cervical SCI. Coordination of care, access to therapy that transcends disciplines and improved education may help lead to progress, despite substantial barriers such as lack of external support, cost, and logistical obstacles.

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ASHT 2025
ANNUAL MEETING

OCTOBER 23–25, 2025

SALT LAKE CITY, UTAH

BLAZE A NEW TRAIL:
EMBRACING OUR FUTURE, COMMITTING TO SUSTAINABILITY

American Society of Hand Therapists®