



PURPOSE

- The purpose of the capstone experience was to develop entry level skills in the advanced clinical practice area of hand therapy.
- Create a clinical practice guideline for the swan neck and boutonniere deformities.
- Apply the occupational adaptation and biomechanical frame of references into hand therapy practice.
- The experience took place at TRIA orthopedics in Woodbury, MN in the hand therapy department.

BACKGROUND

- Hand therapy is defined as, “the art and science of rehabilitation of the upper limb, which includes the hand, wrist, elbow, and shoulder girdle” (Hand Therapy Certification Commission [HTCC], 2009, para. 1).
- The hand therapy field has been known to follow a reductionist biomechanical approach in clinical practice, focusing more on body structures and functions (Fitzpatrick & Presnell, 2004; Robinson et al., 2016; Rose et al., 2011; Takata et al., 2017).
- Research has shown that occupation-based interventions lead to superior outcomes compared to a single-minded biomechanical approach (Bachman, 2016; Jack & Estes, 2010; Marik & Roll, 2017; Powel & Von Der Heyde, 2014; Weinstock & Mehta, 2019).
- The occupation-based focused intervention approach prioritizes engagement in meaningful occupations/using occupation-based interventions that focus on the individual’s performance without ignoring the biomechanical frame of reference or the benefits of existing evidence-based methods (Jack & Estes, 2010; Robinson, 2016).
- Occupational therapists understand the complex relationship between the client, their engagement in meaningful occupations, and their context, to design occupation-based intervention plans (American occupational therapy Association [AOTA], 2020).

THEORETICAL FOUNDATION

Occupational Adaptation (Schkade & Schultz, 1992)

- Consists of three key elements: the person, the occupational environment, and interaction between the two
- A press for mastery is created by the internal desire and external demand to participate in any given occupation, resulting in an occupational challenge
- Adaptation leads to function, and when an individual increases their ability to adapt, their function will increase as well

Application to Capstone

- Helps shift from a strictly biomechanical hand therapy approach to a more holistic, occupation-based, and client-centered approach (Jack & Estes, 2011)
- Focused on education and patient goals for more holistic approach to therapy

Biomechanical (McMillan, 2011)

- Restoration of body structures and functions such as strength, range of motion, and endurance (McMillan, 2011)

Application to Capstone

- Fundamental in hand therapy, used to assess and treat patients regarding function (ROM, strength, dexterity, edema, etc.)

METHODS

Objective 1: TRIA student objectives in order to be competent in facility protocols and methods

- Included the initial orientation, documentation training on Epic, overview and training for common diagnoses/treatment methods/modalities/splints/etc.

Objective 2: Watch surgery videos of common diagnoses seen in clinic to gain a better understanding of the procedure and the anatomy included.

- Written reflection of videos watched include distal radius fracture repair with volar plate, CMC suture sling arthroplasty, flexor tendon repair in zone 2, and carpal tunnel release. Reflection focused on how the procedure impact’s function relating to the anatomy involved.

Objective 3: TRIA hand therapy pre/post exams and physical agent modalities exam in order to show competence in treating various conditions and diagnoses.

- PAMs competency trainings and worksheets included ultrasound, e-stim, H-wave, iontophoresis, paraffin wax, and fluidotherapy.
- Wound care lecture and exam focusing on post-operative care .

Objective 4/6: CPG on boutonniere and swan neck deformity and present it to fellow hand therapists.

- CPG handout and presentation to hand therapy staff.

Objective 5: Case study on a poly-trauma patient including the Occupational Adaptation model and how it relates to practice and this patient.

- Case study handout and presentation to hand therapy staff.

Objective 7: Proficient in completing 3-4 hours of patient care per day by 6 weeks and 6-8 hours of patient care by 14 weeks. I will be competent in fabricating 5 common hand therapy orthoses by 14 weeks.

- Summary of capstone experience including: diagnoses treated, evaluation methods, treatment methods, custom splints fabricated, and PAM competencies.

RESULTS / CONCLUSIONS

- Gained entry-level therapist skills by treating full caseload consisting of various diagnoses using various treatment methods and competency with fabricating common orthoses.
- Patient demonstrated good compliance with therapy and optimal outcomes with the inclusion of the Occupational Adaptation and biomechanical frames of reference to guide practice.
- Practice guideline created for therapists to use at TRIA to ensure they are following latest evidence based research to guide their treatment sessions.

IMPLICATIONS FOR OCCUPATIONAL THERAPY

- The Occupational Adaptation and biomechanical frame of reference were appropriate theoretical constructs to guide practice in the hand therapy setting.
- The use of Ikiugu’s eclectic method of combining theoretical principles is warranted (Ikiugu & Smallfield, 2011).
- OT’s in the hand therapy setting should be shifting towards a more client-centered and occupation-based approach to therapy (Bachman, 2016; Jack & Estes, 2010; Marik & Roll, 2017; Powel & Von Der Heyde, 2014; Takata et al., 2017; Weinstock & Mehta, 2019).
- Need for future and expanded evidence-based research comparing the outcomes of patients treated with the occupational adaptation approach versus the traditional biomechanical approach (Bachman, 2016).

REFERENCES

- American Occupational Therapy Association. (2020). Occupational therapy practice framework: Domain and process (4th ed.). *American Journal of Occupational Therapy*, 74(Suppl. 2), S1–S48. doi:10.5014/ajot.2020.74S2001
- Bachman, S. (2016). Evidence-based approach to treating lateral epicondylitis using the Occupational Adaptation model. *American Journal of Occupational Therapy*, 70, 7002360010. doi:10.5014/ajot.2016.016972
- Fitzpatrick, N. & Presnell, S. (2004). Can occupational therapists be hand therapists? *The British Journal of Occupational Therapy*, 67, 508–510. doi:10.1177/030802260406701107.
- Hand Therapy Certification Commission. (2009). Definition of hand therapy. Retrieved 3/4/22 from <https://www.htcc.org/consumer-information/the-cht-credential/definition-of-hand-therapy>
- Ikiugu, M. N. & Smallfield, S. (2011). Ikiugu’s eclectic method of combining theoretical conceptual practice models in occupational therapy. *Australian Occupational Therapy Journal*, 58(6), 437–446. doi:10.1111/j.1440-1630.2011.00968.x
- Jack, J. & Estes, R. I. (2010). Documenting progress: Hand therapy treatment shift from biomechanical to occupational adaptation. *American Journal of Occupational Therapy*, 64, 82–87. doi:10.5014/ajot.64.1.82.
- Marik, T. L., & Roll, S. C. (2017). Effectiveness of occupational therapy interventions for musculoskeletal shoulder conditions: A systematic review. *American Journal of Occupational Therapy*, 71(1), 7101180020p1-7101180020p11. doi:10.5014/ajot.2017.023127
- McMillan, I. R. (2011). The biomechanical frame of reference in occupational therapy. In E. A. S. Duncan (Ed.), *Foundations for practice in occupational therapy* (5th ed., pp. 179–194). Elsevier Ltd.
- Powell, R. K., & von der Heyde, R. L. (2014). The inclusion of activities of daily living in flexor tendon rehabilitation: A survey. *Journal of Hand Therapy*, 27, 23–29. doi:10.1016/j.jht.2013.09.007
- Robinson, L. S., Brown, T., & O'Brien, L. (2016). Embracing an occupational perspective: Occupation-based interventions in hand therapy practice. *Australian Occupational Therapy Journal*, 63(4), 293–296. doi:10.1111/1440-1630.12268
- Rose, B. W., Kasch, M. C., Aaron, D. H. & Stegink-Jansen, C. W. (2011). Hand Therapy literature incorporate the holistic view of health and function promoted by the World Health Organization? *Journal of Hand Therapy*, 24, 84–88. Doi: 10.1016/j.jht.2010.12.003
- Schultz, S., & Schkade, J. K. (1992). Occupational adaptation: Toward a holistic approach to contemporary practice. Part 1. *American Journal of Occupational Therapy*, 46, 829–837.
- Schkade, J. K., & Schultz, S. (1992). Occupational adaptation: Toward a holistic approach to contemporary practice. Part 2. *American Journal of Occupational Therapy*, 46, 917–926.
- Takata, S., Wade, E., Roll, S. (2017). Hand Therapy Interventions, Outcomes, and Diagnoses Evaluated Over the last 10 Years: A Mapping Review Linking Research to Practice. *Journal of hand therapy volume* 32(1), 1-9. doi:10.1016/j.jht.2017.05.018
- Weinstock-Zlotnick, G., & Mehta, S. P. (2019). A systematic review of the benefits of occupation-based intervention for patients with upper extremity musculoskeletal disorders. *Journal of Hand Therapy*, 32(2), 141–152. <https://doi.org/10.1016/j.jht.2018.04.001>