



Effectiveness of the Hand and Upper Extremity Custom Orthosis Fabrication Course

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Description of DCE Site

Advanced Therapy Center (ATC)

- Outpatient private rehabilitation clinic with three locations in Torrance, CA established by an OT in 2003
- Mission Statement: providing occupation-based therapy that is “evidence-based care resulting in our patients returning to the activities they need to do” (Advanced Therapy Center, 2022).
- Services provided includes:
 - Occupational Therapy (hand therapy & pediatrics)
 - Physical Therapy
 - Speech Language Pathology

Population Served & Funding Resources

- Population served: individuals of all ages with hand and upper extremity diagnoses
- Funding resources: major insurance companies and referrals from partners such as UCLA Health, Cedar-Sinai Medical Center, and Kaiser Permanente

Summary of Needs Assessment

Data Collection Methods

- One-on-one in person semi-structured interviews
- Open-ended survey
- Conducted with OTs at ATC and previous ATC doctoral capstone student

Needs Identified

1. Custom orthosis fabrication manual and course for therapists and students
2. Update home exercise programs available for patients on WebPT
3. Training on evaluation and treatment for post neurological conditions

Learning Objectives

1. By the end of DCE, the doctoral student will have created and conducted an orthosis fabrication course to students that promote enhancing clinical practice skills.
2. By the end of DCE, the doctoral students will have updated the orthosis fabrication protocols and condition specific training manual with evidence-based practice as a resource for fieldwork students and staff to promote carry-over of clinical practice skills.
3. By the end of DCE, the doctoral students will enhance their foundational knowledge and clinical practice skills of the specialized field of hand therapy.

Literature Review

Orthosis Fabrication within the Occupational Therapy Profession

- Within hand and upper extremity rehab, occupational therapists are trained on designing, fabricating, applying, and fitting customized orthotic devices pertaining to various diagnoses (Schofield & Schwartz, 2018)

Hands-on Learning of Orthosis Fabrication

- Evidence indicates that students and fieldwork educators reported the least competent is practical clinical skill set with custom orthotic fabrication due to limited hands-on practice (Short et al., 2017).

Finger, Thumb-Spica, and Wrist Cock-Up Orthosis

- The most common types of custom orthoses created by licensed therapists and occupational therapy students within hand and upper extremity rehab are finger, thumb-spica, and wrist cock-up orthosis (Kaunnil et al., 2022).

Problem Statement

The current clinical practice skill time provided to custom orthosis fabrication within occupational therapy academic curriculum is limited, resulting in a decrease in student competency and readiness to enter a fieldwork rotation in hand therapy.

Project Description & Implementation

Primary Focus Area: Education

- Establish course learning objectives, outline, expectations
- Establish trigger finger, mallet finger, thumb spica, and wrist cock-up pre-course lab handouts based on evidence-based research
- Establish course PowerPoint curriculum based on evidence-based research
- Create marketing template and recruit participants
- Schedule and implement two course dates

Secondary Focus Area: Clinical Practice Skills

- Conduct patient evaluations and treatment sessions with appropriate PAMs
- Update Condition Specific Training Manual with evidence-based research
- Create orthosis fabrication protocols with evidence-based research



Results

Quantitative Data

- Course Pre-test & Post-test Survey
 - Total of 17 participants
 - 10 multiple choice questions completed in 10-15 mins
 - Shown in Table 1 are the percent correct for each question
- Course Feedback Survey
 - Total of 14 participants
 - 8 multiple choice questions completed in 10-15 mins
 - 100% of students rated the course to be excellent

Pre-test and Post-test Survey Comparison

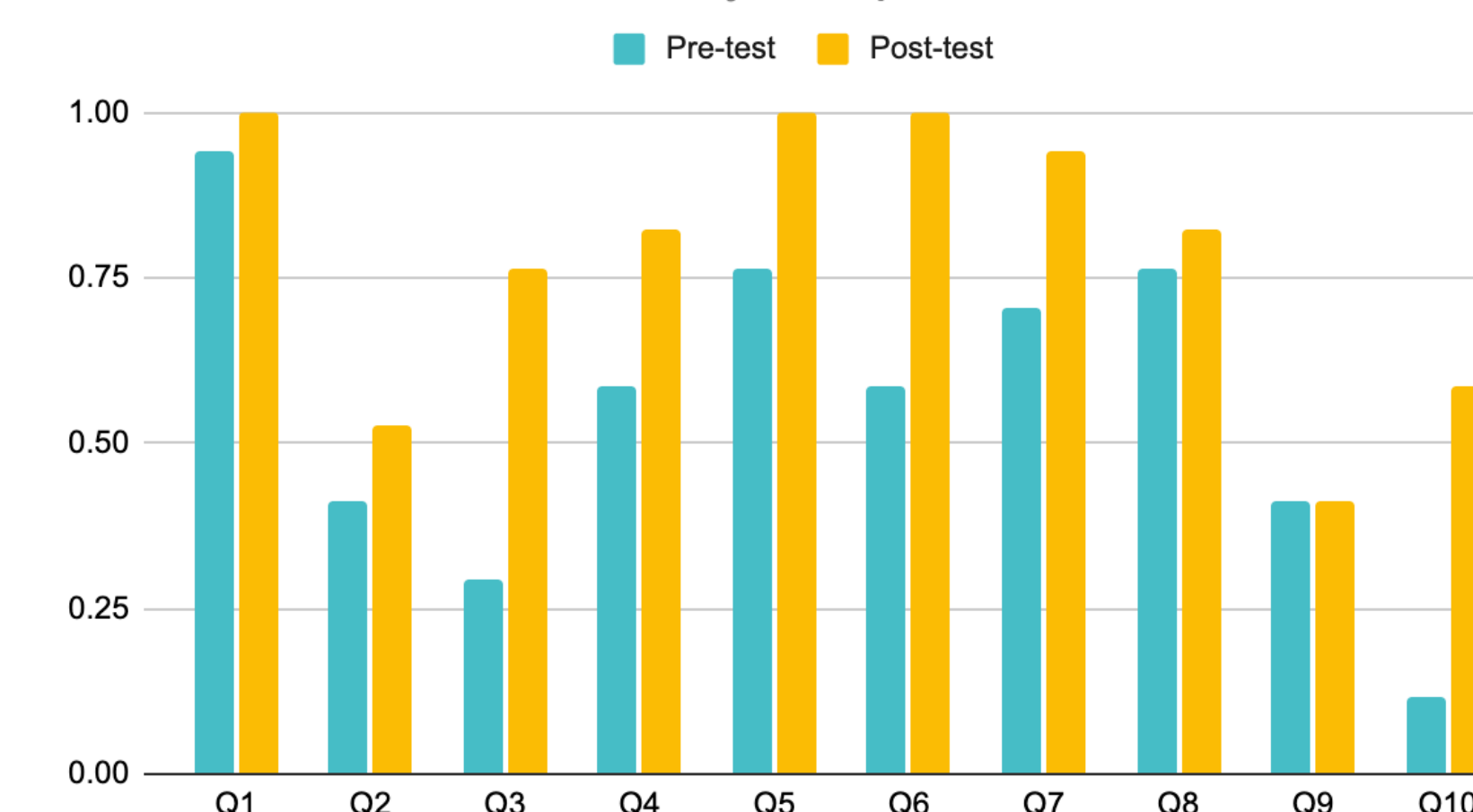


Figure 1 Pre-test and Post-test Survey Comparison

Qualitative Data

- Course Instructor Survey
 - Total of 17 participants
 - 3 open-ended questions completed in 10 mins
 - “Provided excellent instructions and fun learning experience!”
 - “Instructor was attentive to questions and providing help.”
- Course Feedback Survey
 - Total of 17 participants
 - 2 open-ended questions completed in 10 mins
 - “Course was well organized and very informative!”
 - “I liked the examples provided and hands-on practice!”
 - “Great hands-on experience and one-on-one instruction.”

Discussion

Quantitative Data

- Pre-test survey average score was 5.59 out of 10 compared to Pre-test survey average score was 7.88 out of 10 indicating positive significant statistical values
- Participants demonstrated improvements with clinical practice skill set and foundational knowledge of custom orthosis fabrication

Qualitative Data

- Common themes gathered includes providing good hands-on experience, organized and clear course lecture, appropriate pace, and instructor demonstrating great knowledge of content
- Constructive feedback received was to provide more visuals and examples of other types of orthoses

Implications & Future Directions

Findings suggest specific aspects of course layout may be renovated:

- Registration methods
- Lab activity organization
- Lab activity presentation

Summary of Deliverables

- Pre-course handouts and Course PowerPoint
- Updated Condition Specific Training Manual
- Orthosis Fabrication Protocols

References



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