Digitizing Home Exercise Programs and Goniometers in a Hand Therapy Setting

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Description of the DCE Site

- Advance Therapy Centers
- Founded in 2003
- Mission: “We provide high level, evidence-based care resulting in our patients returning to the activities they need to do. We believe healthcare should focus on the whole being, not just the diagnosis and that teamwork to reach our patients goals are essential to long term success.”

DCE Site Needs Assessment

- Increased interrater reliability in the use of goniometers Implementing digital goniometers
- Digitizing the home exercise programs helps patients follow along and adhere to programs
- Updating splinting protocol
- Revamping of the Auditing System

Literature Review - Home Exercises

- Multimodal information in the form of videos can be of high value since technology is more widely available
- Patients in a study have reported benefits of ease in following instructions though video and increased adherence to the home exercise program
- The digital exercise program should be encouraged to all healthcare professions as it improves adherence to home programs, it is more relatable to the current population, and reduces time spent on making copies of individualized home exercise programs

Literature Review - Digital Goniometer

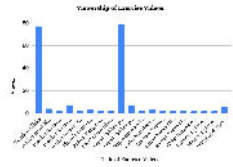
- Two separate studies were conducted to determine the interrater reliability, intrarater reliability, as well as concurrent validity of the new EasyAngle goniometer
- Interrater reliability was good when comparing to others who used the device and another who used a different tool to measure range of motion
- EasyAngle goniometer has great concurrent validity and good interrater reliability to aid therapists in determining the most accurate measurements with minimal degrees of difference

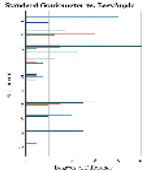
Learning Objectives

1. Developed a proper digital home exercise program to provide patients with videos and evaluated adherence of the program in their own homes.
2. Implemented and evaluated the use of a digital goniometer on clients to determine their effectiveness on improving interrater reliability and consistency in outcome measurements.
3. Created an updated auditing system for the outpatient hand therapy clinic to promote compliance and ethical billing processes.
4. Obtained advanced clinical knowledge and skills in providing therapy to patients in an outpatient hand therapy clinic by maintaining a caseload of patients.

Project Description

- Conduct a research study on the effectiveness on reliability and accuracy using a digital goniometer called the EasyAngle
- Implement a digital home exercise program consisting of videos and guidelines to determine adherence to a digitized home exercise program





Implementation

- EasyAngle - 7 week preparatory phase followed by a 7 week data collection period. Conducted by the doctoral capstone student and 3 Therapists
  - Sample size of 10
- Digital HEP - 7 week preparatory phase followed by a 7 week data collection period. Conducted by the doctoral capstone student
  - Sample size of 10

Evaluation and Outcomes

- Quantitative data collection with measurements taken with the EasyAngle. Quantitative data recorded from viewership of the home exercise program
- Qualitative data obtained through formal and informal interviews for both research studies
- All recorded on an Microsoft Excel sheet
- The margin for error is at 3.365 degrees which is less than the perceived margin for error when using traditional goniometers
- Great potential and use for measuring larger joints such as the shoulder, elbow and even the wrist
- There is a positive relation to the increased viewership of the videos to increased adherence to a program
- The digital home exercise program has benefited the participants

Scholarly Deliverables

Acknowledgements

- Thank you to my mentors, Perri Rossi and Michelle Kornet for the immense support and guidance
- I would like to acknowledge Meloq Devices for providing the digital goniometer

References