



Early Active Approach for Flexor Tendon Repair: A Case Report

Jasmine Ruiz, OTD/S, Mariem Metry, MSOT, OTR/L, CHT, Sergio Sandoval, MOT, OTD, OTR/L, CHT

Casa Colina Hand Therapy Clinic

- Non-profit organization
- Outpatient Hand Therapy Clinics in **Pomona** & Azusa
- Serves as a rehabilitative continuum for all stages of recovery

Mission Statement

“To optimize medical recovery and rehabilitation outcomes for all patients in a safe environment that respects their dignity, diversity, and individuality”
(Casa Colina Hospital, n.d.)

Needs Identified

1. Implementation of evidence-based practice in the clinic, relating to early active approaches for flexor tendon repair rehabilitation
2. Establish collaborative learning & decision making through the Casa Colina Hand Therapy Journal Club
3. Expansion of department with more therapists trained in hands

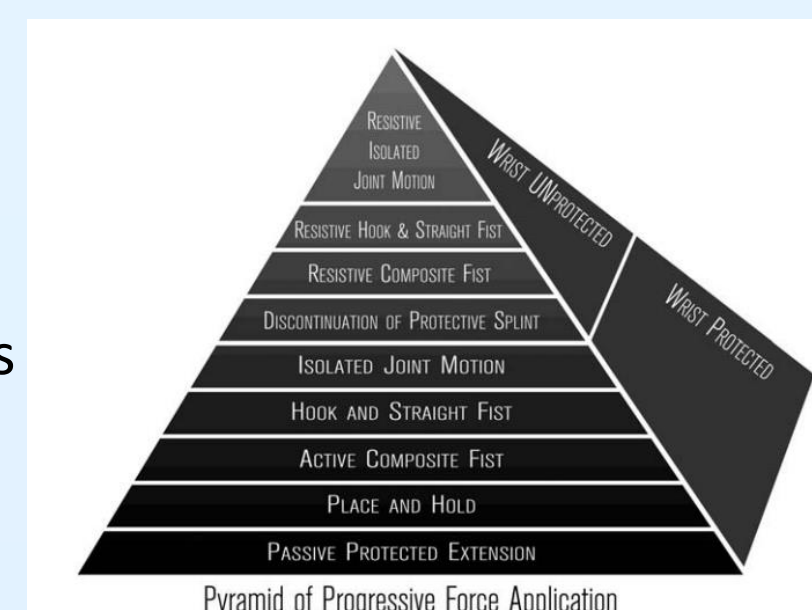
Background

Themes

- The term, “early active” is used broadly in literature (Neiduski & Powell, 2019)
- Place and hold regimens are more effective than early passive (Neiduski et al., 2019; Abdel Sabour et al., 2018)
- No superior regimen or universally accepted protocol (Peters et al., 2021; Allam et al., 2020)

Limitations & Gaps

- Adherence to regimens not discussed
- Few therapists address ADLs
- Client centered & functional ADL outcomes (Powell & Heyde, 2014)
- Utility of a graded resistance program (Groth, 2004; Amadio, 2011)



(Groth, 2004)

Learning Objectives

1. Implement case report on early active motion for flexor tendon repair
2. Obtain advanced clinical practice skills in treatment and evaluation of conditions of the hand
3. Join the Hand Therapy Journal Club & disseminate research findings

Project Description & Methods

What are the benefits of an early active approach on client centered occupations for a patient with a flexor tendon repair?

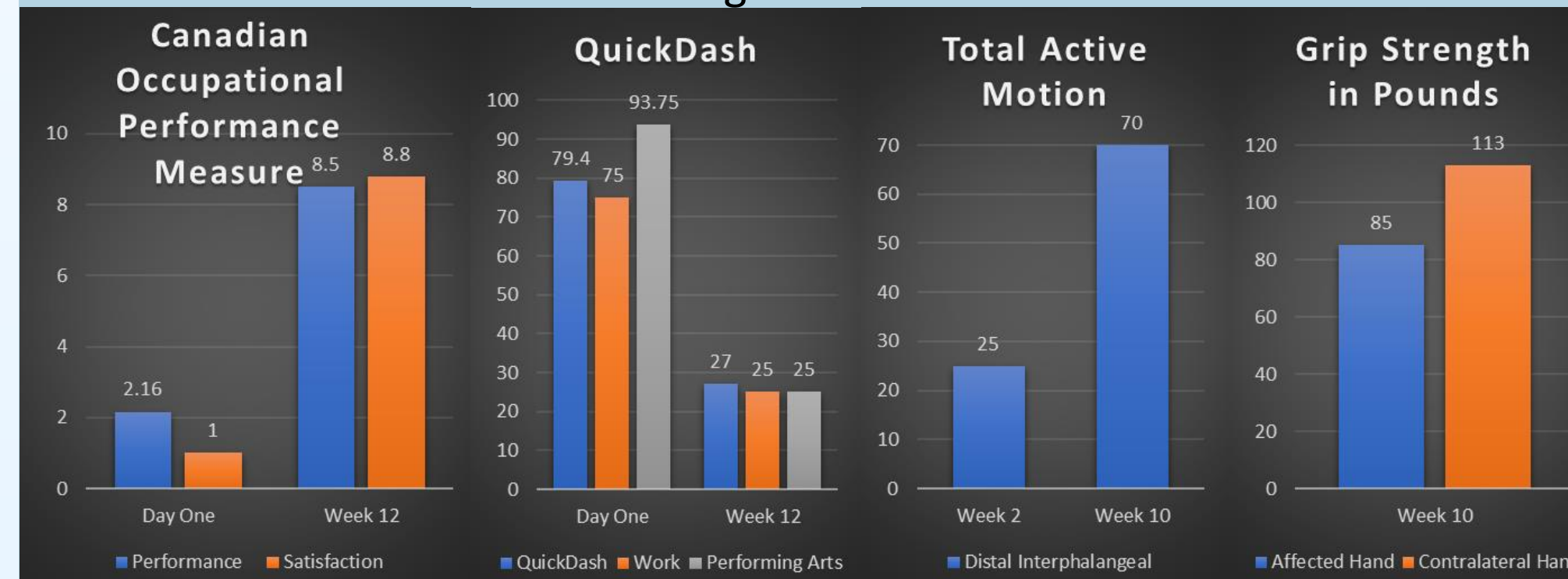
- **Design**
 - Single case report with mixed methodology
- **Participant**
 - Ambidextrous male, age 47 with flexor tendon repair in zone 1
 - Type 3 jersey finger injury of ring finger
 - No crush injury & no previous diagnosis limiting movement
- **Procedure**
 - Forearm based dorsal block orthosis
 - Progressive force using Groth’s (2004) adhesion grading system

- Week 1-3**
 - Early active place & hold tenodesis: 5 second isometric hold
 - Simulation of one-handed techniques for occupations
- Week 3-4**
 - Place and hold hook fist with wrist neutral
 - Reviewed adaptive equipment for occupations
- Week 4-5**
 - Active composite & hook fist
 - Active tenodesis motion
- Week 5-6**
 - Active lateral blocking with gradual progression of joint angles
 - Modifications for valued occupations
- Week 6-8**
 - Discontinue dorsal blocking orthosis, active palmar blocking
 - Simulation of occupations for hand function
- Week 8-12**
 - Resistive hook & composite fist

Outcome Results

Quantitative Data

- Canadian Occupational Performance Measure (COPM)
 - Participation in important occupations improved by 63.4%
 - Satisfaction improved by 78%.
- QuickDash score improved by 52%
 - 50% improvement in work module
 - 68.75% improvement in performing arts module
- Excellent total active motion (97%) at 10 weeks using Strickland’s criteria
- 74% Grip strength of contralateral hand at 10 weeks.
- 97% mean adherence during weeks 1-6
 - 60% mean adherence during weeks 6-12



Qualitative Data

- **Intrinsic motivation, reminders, and work** affect adherence to program
 - “Wearing the big splint is a constant reminder to do my exercises.”
 - “Not being able to use my hand is hard, I just want to get better.”
 - “Work gets in the way, it’s too busy.”

Conclusion

- Early active regimens should be accompanied with safety measures
 - Gradual progressive force & synergistic motion in safe zone
- Excellent results in hand function & improved disability
 - Improved performance & satisfaction in client centered occupations
 - Excellent total active motion
- Orthosis supported adherence & work role hindered adherence

Scholarly Deliverables

- Case Report Research Study can be replicated for larger case series
- Dissemination of Case Report to Casa Colina Hand Therapy Journal Club
- Competency Checklist for Entry Level Hand Therapists
 - Basic Competencies
 - Knowledge Competencies
 - Clinical Competencies

OT Implications

- Supports use of occupational therapy assessment in hand therapy
- Bolsters a client centered approach to flexor tendon repair rehabilitation
 - Illuminates client perspective on factors affecting adherence
 - Addresses patient centered, occupational goals
 - Modifies protocol based on individual tissue response
- Provides evidence-based practice for effective solutions to patient care

Future Directions

- Survey for current practice methods used in flexor tendon rehabilitation
- Randomized Control Trial (RCT) with comparison to true active flexion with relative motion flexion (RMF) orthosis
 - Use of standardized functional hand assessment
 - Include adherence & standard outcomes

Acknowledgements

Thank you to Mariem Metry, Dr. Sandoval, Dr. Lilley, Dr. Miller, & the Casa Colina Hand Therapy team for continued mentorship & allowing a collaborative learning experience to take place.

References

References available upon request