FEASIBILITY OF AN OCCUPATION-BASED INTERVENTION MANUAL FOR OUTPATIENT HAND CLINICS

By

Mia M. Moralez

Bachelor of Science – Kinesiology
California State University, Bakersfield
2020

A doctoral project submitted in partial fulfillment
of the requirements for the

Occupational Therapy Doctorate

Department of Brain Health
School of Integrated Health Sciences
The Graduate College

University of Nevada, Las Vegas
May 2024

UNLV | GRADUATE COLLEGE

Doctoral Project Approval

The Graduate College
The University of Nevada, Las Vegas

May 3, 2024

This doctoral project prepared by

Mia Moralez

entitled

Feasibility of an Occupation-Based Intervention Manual for Outpatient Hand Clinics

is approved in partial fulfillment of the requirements for the degree of

Occupational Therapy Doctorate
Department of Brain Health

Donnamarie Krause, Ph.D.
Graduate Coordinator

Jefferson Kinney, Ph.D.
Graduate Program Chair

Alyssa Crittenden, Ph.D.
Vice Provost for Graduate Education & Dean of the Graduate College

Abstract

Purpose

The purpose of this quality improvement study was to determine the usefulness of an Occupation-based Intervention Manual (OBI) for hand therapists in Southern Nevada and if the utilization of the OBI manual supported client-centered outcomes regardless of diagnosis, age, or population.

Methods

Convenience sampling was used, and five participants met the inclusion criteria in the twelve-week study. Pre-interview questionnaire responses from the therapists were used to develop the OBI manual content and corresponding Utilization Tracker. Post-interview questionnaire responses were used to determine the application and outcomes of the OBI manual. Descriptive statistics, frequency distribution, and thematic analysis were used and applied.

Results

Five participants were practicing hand therapists (n=5). Pre-interview responses revealed themes associated with occupation within hand therapy and current educational resources used for return to occupation. Utilization Tracker results demonstrated the utilization frequency of the OBI manual. The OBI manual was used primarily to visually display the included content of the OBI manual (*f*=27), patient education (*f/n*=89%), and during initial evaluations (*f/n*= 80%). Of the common diagnoses, trigger finger was the most common diagnosis treated with the use of the OBI manual (*f/n*=24%). Post-interview responses generated common themes associated with the overall perceptions and use of the OBI manual which included patient receptiveness, an effective use of time, an educational resource, and user-friendliness.

Conclusion

The initial outcomes of this project indicate therapists appreciated, used, and implemented the OBI for reference, interdisciplinary collaboration, and patient education, thereby highlighting and rediscovering the value of occupation within hand therapy.

Keywords: Occupation-based, hand therapy, outpatient, resource, accessibility

Acknowledgments

I would first like to thank my fiancé, mom, dad, and friends for always striving for my success throughout the entirety of my journey through this capstone and program. Through them, I gained the strength to overcome and persevere through the hardships I have faced to get to this point. This would not have been possible without all your collective support.

I am also appreciative of the therapists I have met at ATI Physical Therapy. Each one of you helped me in various ways providing knowledge, experience, and laughs through my entire capstone experience. To my site mentor Casey Marano, thank you for providing me with your knowledge and the opportunities to learn as I continue my journey into hand therapy.

Lastly, I would like to thank my faculty mentor, Dr. Donnamarie Krause. Thank you for teaching me how to analyze and evaluate my writing as it continued to develop over the past year. Your uplifting energy always helped me when I was feeling overwhelmed.

Table of Contents

List of Tables

Section One: Introduction

There are various approaches to addressing common hand diagnoses, fortunately, the occupational therapy (OT) profession's philosophy values the incorporation of routine activities that are no different from our everyday routines. OT is a healthcare profession that focuses on utilizing daily occupations (routine activities) individuals engage in that hold personal importance, thereby giving their lives meaning and purpose. Occupation-based practice (OBP) and occupation-based interventions (OBI) utilize occupations at the center of care (Fisher, 2013). Occupational therapists (OTs) use their knowledge to create interventions that directly align with patient goals to engage in their daily occupations, thus creating an OBI plan. Interventions chosen by therapists are required to support healthy participation in occupations (AOTA, 2020). Through the careful selection and creation of these interventions, OBI is embedded within OBP, in which OBP is the overarching principle behind client-centered practice, and OBI is the occupation that can be adapted to individual contexts. Although this statement is derived from the framework for OT, current trends in hand therapy have adopted a biomechanical lens that has strayed from the foundation of utilizing occupations as a means (Amini, 2008).

Hand Therapy Constructs

Hand therapy, using the OT treatment continuum, consists of three constructs: Assessing patient characteristics, determining prognosis, and implementing a plan of care (POC) with therapeutic intervention (Keller et al., 2022). Hand therapy practice perceptions have predominantly focused on manual skills over client-centered approaches (Jack & Estes, 2010). However, the shift from one approach to another depends on environmental constraints (Phillips et al., 2019; Psillas & Stav, 2020). Despite these constraints, therapists in hand therapy settings have reported a need for routine incorporation of both biomechanical and occupation-based

approaches (Valdes et al., 2019). In the most recent survey of occupational therapists in Nevada, 7.6% of therapists practice within the adult outpatient clinic setting (Nevada Board of Occupational Therapy, 2020). Statistics were not available on the classification of the outpatient settings.

Hand Therapy Specialists

Hand therapists can be an OT or physical therapist (PT) and are considered generalists in their respective fields but require extra certification to become a certified hand therapist (CHT) and use the title. As of 2022, there were a reported 6,600 CHTs in the United States (Bailey, 2022). OTs make up the majority of CHTs, accounting for 85%, whereas PTs account for the remaining 15% (Short, 2018). The primary similarity between the two professions within the field of hand therapy is their rehabilitative service to upper extremity conditions that address pain, range of motion, and overall mobility derived from their respected program curriculums to become generalists within the rehabilitation field (Short, 2020). OTs in the field supply an added component of occupation in comparison to PTs with participation in daily occupations, emphasizing environmental factors, and the inclusion of how mental health can be affected with the onset of a new or pre-existing condition. There is a lack of statistics on the number of OTs who are practicing hand therapists without a CHT certification, however, with a small number of practicing CHTs, it is important to ensure that the therapists who are practicing with or without a certification, are incorporating occupation into their interventions.

Significance to Occupational Therapy

Although occupations within hand therapy can be a driving factor in the intervention planning stage, hand therapists have adopted a biomechanical approach to treatment. The biomechanical approach is derived from the medical model which limits holistic and OBP

(Colaianni and Provident, 2015). Therapists within the field are limited to their pre-established constructs and resources which limit their ability to balance therapeutic exercise from the biomechanical approach with occupations as a therapeutic means. Nevertheless, therapists have noted the value of occupation but are unsure of how to incorporate it as there is limited research on OBI and OBP (Colaianni and Provident, 2015). Therefore, a curated manual could increase accessibility to education on the inclusion of occupations. This is evidenced by limited research on OBI utilization within current practice and its impact on patient outcomes in outpatient settings. In this study, it is argued that the proposed solution includes the creation of an OBI manual to increase therapist accessibility and information regarding occupations. This encouraged the incorporation of OBI into hand therapy treatment in an outpatient setting. With therapist utilization of OBI as an extension to existing biomechanical interventions. The following project was guided by the question, "Does the incorporation of an occupation-based intervention (OBI) manual in an outpatient hand therapy clinic increase accessibility to OBI?"

This study falls within the AOTA intervention, translational, and health services research arena to further evaluate occupational therapy interventions (Ross, 2019). Research is prioritized for interventions that are client-centered, occupation-based, theory-driven, and manualized. This is important to note as the implementation of this OBI manual aids in this research category to further define OBI and its implications for use within hand therapy clinics.

Section Two: Statement of the Problem

Limited evidence was found in the literature search on OBI within hand therapy settings however, current research and literature may be pending. This is coupled with considerable differences in terminology between practitioners around the term "occupation", meaning OBIs are not occurring, therefore, patients are missing out on meaningful client-centered treatment. Occupation from an OT lens refers to daily activities that individuals find meaningful (AOTA, 2020). Within the literature, occupation-based, occupation-focused, and occupation-centered have been used in terminology to define the relationship between occupation within occupational therapy (Fisher, 2012). Occupation-focused and occupation-centered have been widely used interchangeably in defining the use of occupation at the center of treatments (Fisher, 2012). However, they are uniquely different and vary from occupation-based.

Occupation-centered refers to the lens utilized during research, education, and practice (Fisher, 2012). For example, a therapist is occupation-centered when researching interventions appropriate for their patient with their desired occupation in mind. Occupation-focused refers to evaluating occupational performance to change contexts from an individual's perspective (Fisher, 2012). For example, a hand therapist grading an activity during sessions to focus on occupational performance. With these two terms in mind, a therapist could then implement occupation-based interventions regardless of their professional discipline. Occupation-based refers to an occupation being the fundamental piece of the intervention itself, meaning the person is actively engaged in their desired occupation. These definitions allow for a delineation of occupation from various perspectives. A shift towards understanding how occupation is referred to could potentially increase therapist's perception of occupation to further be utilized in the hand therapy setting.

"Occupation as a means", is a core concept within the OT profession and one in which therapists use occupation as a primary method for intervention planning during patient care. Intervention planning is derived from the OT process, in which evaluation, intervention, and outcomes have an ongoing interaction to aid therapists in client-centered care when creating goals for their patients (AOTA, 2020). Furthermore, it is within the OT practice framework that there is a selection of OBI to enhance patient participation (AOTA, 2020). Medical practice has relied on the medical model, in which care is directed to underlying pathologies. Coinciding with the medical model, the biopsychosocial model examines the connectedness of biological, psychological, and social aspects (Farre & Rapley, 2017). There is needed improvement of knowledge and understanding of occupation-based treatment as research indicates that existing practice has been attempting to emphasize balancing the medical and biopsychosocial models with a holistic approach. When the medical model is used, and the condition is examined over the person, the occupational profile can be minimized. When decreasing the value of the occupational profile, therapists may not be provided with the needed information on client factors that impact daily performance. With occupation at the forefront of care, it could allow for patient education and follow-through of activities in their home settings. A recent review of the literature found the use of OBI and assessments in hand therapy, of the three hundred eleven hand therapists, only 41% reported the application of OBI in their practice 26-50% of the time (Valdes et al., 2023). Further high-quality research needs to be conducted to examine occupational therapist knowledge and perceptions of OBI and its functional use within outpatient clinics.

Throughout the OT paradigm, considerable changes in the terminology were used to describe OBP and OBI (Henrichon & Toth-Cohen, 2022). Although OBP and OBI have been

implemented into current practice in many facilities, clinicians cannot explain these practices to others (Dapito & Bondoc, 2018). Before examining the relationship between OBP and OBI, conceptual and operational definitions need to be defined. Conceptual definitions are dictionary definitions. For example, "OBI: Interventions where the occupational therapist uses engagement in occupation as the therapeutic agent of change", whereas operational definitions describe the way each term will be used for this study, "OBI: The use of occupations as a primary means to achieve performance-related goals within hand therapy". All conceptual and operational definitions have been outlined for this study (see Appendix A).

Needs Assessment

The need for this project was developed through a literature review and observations of various outpatient hand therapy clinics found to have a biomechanical base with minimal focus on occupations. Occupations were either not addressed or minimally addressed during evaluations through quick questions of limited activities related to diagnosis. Following evaluations, occupations were brought up solely through conversations during treatment. These experiences developed the need for an accessible resource for therapists to utilize to incorporate occupation into hand therapy.

Section Three: Literature Review

A literature review was conducted on articles published within the last 10 years; however, all other applicable articles were included due to the scarcity of current research related to OBI within hand therapy. All supporting literature was utilized to expand the knowledge of OBI and how it has previously and is currently being utilized within hand therapy. Quantitative literature was based on levels of evidence which included: Two level I studies, four level II studies, three level III studies, two level IV studies, and one level V study. Qualitative literature was evaluated on their respective dimensions to the field of OT (Taylor, 2017). Four dimension 1 studies, three dimension three studies, and four dimension five studies were examined to support the following literature review. Examination of the rising perspectives within hand therapy from patient to therapist perspective, a shift towards occupation, including its barriers, and lastly, the coupling of OBI with current biomechanical treatments are expanded on below.

Historical Approaches to Hand Therapy

The inclusion of occupations within hand therapy has historical roots emerging from occupational therapy's management of upper extremity injury, disease, and disability during World War II (Melvin, 1985). The main role of occupational therapists then was in orthotic fabrication or the creation of custom-made devices for support and recovery of UE injuries or conditions. With an emerging need for therapists to support hand therapy after surgeries, occupational therapists began to fill the role. In an expert report, Melvin (1985) described the role of occupational therapy within hand therapy with the expansion of practice resulting in increased knowledge and understanding of occupations within hand therapy. With purposeful activities or occupations as the foundation of the profession, the focus on restoring or promoting function helped establish OT in this setting. Soon evaluations and assessments for the upper

extremity included the management of complex injuries. When considering functional, physical, social, psychological, and vocational areas when planning interventions, therapists can enable client-centered treatment. This provides a basis for occupational therapy's role from evaluation to discharge through assessments that relate directly to an individual's outcomes as it relates to their occupations and hand functions.

These findings are further supported through a phenomenological study conducted by Helm and Dickerson (1995). The study aimed to gain an understanding of the role of OT in the recovery process and its effect on a hand diagnosis. Three videotaped interviews taken at the post-injury, four-week, and eight-week marks were used to gather information on how the individual coped with their injury and recovery process. Through these interviews, researchers analyzed emerging themes in terms of satisfaction and function. A theme of hand therapists following a "standard program" emerged from the interviews, in which protocols are strictly followed, this led to patients feeling as though their needs are not being met or heard. Other themes associated with therapy were "unrealistic expectations" and "overwhelming". These themes emerged through the examination of the patient's environment and their ability to actively participate in treatment despite internal and external contexts. OT comes into play when each patient is individualized to break the barrier of the standard program by finding out what the patient finds to be purposeful and integrating it into treatment.

Shifting into the 2000s, the role of OTs within hand therapy was still emerging through the examination of the domains of OT as a whole and their place within a predominantly biomedical setting. Case studies conducted by Fitzpatrick and Presnell (2004) aimed to define the role of an OT within the field of hand therapy. Through two case histories, it was concluded that individuals had the same injury, resulting in the same protocol for biomechanical rehabilitation, however, each was unique in the context of their environment and support

systems. These examples solidified the need for an understanding and incorporation of occupational impact as it relates to daily occupations that could potentially impede overall performance. Through a quasi-experimental study, Case-Smith (2003) aimed to measure functional outcomes after outpatient occupational hand therapy. The Canadian Occupational Performance Measure (COPM) and Disabilities of the Arm, Shoulder, and Hand (DASH) were utilized for role, activity, and impairment outcomes. The results of the study included patient identification of activities to increase performance during therapy sessions, pain level with ADL tasks, and improvement of quality of life through physical health, physical roles, pain, and social participation. The study concluded that with the incorporation of client-centered hand rehabilitation, participants saw overall improvement and return to former occupations.

And, in a systematic review, Weinstock-Zlotnick et al. (2017) examined the benefits of OBI for patients experiencing upper extremity musculoskeletal disorders with daily activities for treatment. Conclusions were generated through the examination of randomized control trial (RCT) studies, pre and post-cohort studies, case series studies, and case reports. The findings of the review concluded the relevant benefits to the use of OBI with patients, however, with a growing interest in OBI, it was noted that there must be a defined method of OBI delivery. The range of studies provided evidence for OBI use with varying degrees of utilization. This led to rising and current research within the setting to further define the role of occupations as interventions.

Through the historical approaches and the role of OT emerging in hand therapy over the past decades, it has become apparent that the role of OT revolves around patient collaboration with the identification of occupational impact. Engagement in daily activities has been at the forefront of OT, however, OTs working in hand therapy still find barriers to full implementation of occupations into their practice as predetermined treatment protocols have defined the hand

therapy field (Colaianni & Provident, 2010). Therapists have since used simulations of activities to aid in the inclusion of occupations within their settings, which has been a step forward in pairing occupations with therapeutic exercise. In the present day, occupations within hand therapy are still a rising topic, generating various perspectives on its inclusion and benefits despite barriers to implementation.

Rising Hand Therapy Perspectives

Motivation Driven

Occupational therapists strive to provide treatments that will internally motivate their patients to support them and enable their occupational experience (Guidetti & Tham, 2022). In a phenomenological study, Guidetti and Tham (2022) aimed to describe therapeutic strategies used by OTs in self-care training. Twelve OTs participated in the study where they were interviewed on the process of choosing strategies for their patients. The results of the study concluded that strategies focused on creating a relationship with patients to gain trust and discover their motivational drive. By using their patients' motivational factors, therapists tailored treatments specifically to their needs. The inclusion of OBI entails considering the occupational profile when developing an intervention plan. Therapist utilization of OBI in a "natural" setting increases the patient's internal motivation for performance (Rostami et al., 2017; Weinstock-Zlotnick et al., 2017). Of these studies, naturalistic environment refers to simulated and realistic patient environments as OBI provided a follow-through to patient home settings. Supporting these findings, Rostami et al. (2017) conducted a randomized control trial (RCT) which concluded that patient self-efficacy increased when performing natural versus route exercises as measured by the COPM. An increase in patient motivation can lead to higher performance when therapists utilize OBI in naturalistic environments. This can be challenging to replicate in an

outpatient setting due to constraints, however, taking aspects of an occupation and bringing it into the clinic can offer a transfer of learning in which patients will feel comfortable performing activities from the clinic to home settings.

Client-centered Treatment

Client-centered treatment relies on placing the needs of the client at the forefront of care when deciding treatment options. Research indicates that the collaboration of patients and therapists has varying outcomes. Naughton and Algar (2022) conducted a case series to investigate patients' perceived experience with outpatient hand therapy and its impact on self-reported functional status when OBI is incorporated into treatments. Through evaluation methods, subjects self-reported an increase in occupational performance, health and wellness, self-advocacy, and role competence. These outcomes support the author's notion that occupational therapists should collaborate and support their patient's unique needs. In addition, through a mixed methods survey, Colaianni and Provident (2010) examined the perceptions of occupational therapists. The results of the study concluded that OBI facilitates functional activity and enhances meaningful participation via therapist perception. Perceptions accounted for therapist knowledge of OBI which emerged themes of OBI facilitating function activity through meaningful therapeutic experience and a holistic approach.

Occupational therapists have been challenged in how to effectively incorporate OBI into treatment due to the variations in the language used to support it. Influences on occupation-based hand therapy have added value to the use of OBIs in practice. In an exploratory study, Henrichon et al. (2022) examined hand therapists' perspectives on OBP and OBI. Through semi-structured interviews, six themes emerged: OBP provides custom treatment, the client-therapist relationship is foundational, goal setting is the link between biomechanics and occupation, OBP encompasses

both occupation-based and non-occupation-based treatment, contexts aid or inhibit OBI, and advanced experience facilitates OBI. Of these emerging themes, the client-therapist relationship is a priority, as the foundational rapport gathers insightful information that can lead to detailed goals and tailored interventions. These findings support the author's main notion to define the therapist's perceived value related to OBP and OBI. Therefore, defining occupational therapists' role in creating client-centered treatment through the use of OBI can support therapists' utilization of this approach.

Interventions for upper extremity diagnoses and the outcomes associated with them have been a topic of research interest (Takata et al., 2019). In a mapping review, Takata et al. (2019) aimed to identify any strengths or gaps in available literature in association with hand therapy scope of practice to guide future research. Through a systematic review, relationships among the data categories were generated. Seven categories of interventions utilized included: education, exercise, activity, manual techniques, modalities, orthoses/prosthetics, and miscellaneous (Takata et al., 2019). A comparison assessment was conducted to evaluate strengths and identify gaps in research related to hand therapy relative to the American Society of Hand Therapy. The results of the review indicated that few studies have been performed on the use and evaluation of activity-based interventions. The review further concluded that hand therapists and other clinicians who treat upper extremity conditions primarily focus on manual treatment, education, and exercise over functional activities (Takata et al., 2019). However, clinicians rated equal importance of both exercise and functional activities within practice. These findings further support the gap in research for OBI. A shift in the research focus could aid in the incorporation of occupation as a functional component in hand therapy (Takata et al., 2019). Therefore, the

creation of the OBI manual aids in the research gap and overall utilization of functional activities within hand therapy settings.

A Shift Towards Occupation

Student Experience/Perspectives

Occupations are part of the domain taught to students upon entering their graduate-level programs. Student perspectives were also included for their overall exposure to hand therapy within their curriculum. In a descriptive study, Short (2018) examined the barriers and solutions to fieldwork education in hand therapy. Barriers noted by the two-thousand eighty participants included the perception that students lacked clinical knowledge, skills, and experience development needed prior to their hand therapy placements. Despite these noted barriers, 74% of respondents reported they would accept a student if they received appropriate preparation. To further examine these findings, Short et al. (2020) conducted a mixed-methods study aimed at gaining an understanding of current trends in academia related to hand therapy content. Forty-three participants from masters and doctorate programs answered survey questions and optional interview questions. Quantitative results indicated that 65% of programs included over forty-one hours of hand therapy related content into their program. However, only 54% reported integrating hand therapy content into 2-3 of their courses. Qualitative data reported that hand therapy from a general perspective is specialized, and advanced for a general practitioner.

And, in a descriptive study, an examination of the perceptions of students and therapists was conducted by Fiori and Majeski (2024). Surveys were provided to two-hundred-seven clinicians. In response to student preparedness, 74% of clinicians indicated that students would benefit from additional hand therapy content within their curriculum to support preparedness. Of the twenty-five student participants, 60% felt unprepared to enter a hand therapy fieldwork

setting. An OBI manual can aid in this preparation as students can be provided with a guide as they develop an understanding of the field and integrate into a hand therapy fieldwork placement. The inclusion of exposure to hand therapy during their respective programs can shift student perspectives on their self-efficacy within hand therapy and allow for consistent incorporation of occupations as they enter the field.

Routine Incorporation

Therapist utilization of OBI to support a shift towards occupations has been routinely described. In a qualitative study by Collis et al. (2022), an exploration of the perceptions and experiences of engagement in occupations in the patient recovery process was conducted. Twenty-one adults performed an activity and exercise log over eight weeks following a distal radius fracture. A semi-structured interview was performed at the 6-week and 8-week mark. Through thematic analysis, five themes emerged from the interviews, indicating that occupation was a primary driver of the rehabilitation process, provided an impetus for recovery, offered ready-to-hand challenges for movement, invited intentional use of the affected wrist, habituated wrist movement through repetition and confidence-building, and drew on psychosocial resources to enable re-engagement in life roles and activities (Collis et al., 2022). The results of the study suggest the need for two areas of focus for future therapy: occupation as an agent of change and occupation and exercise as synergistic interventions. Occupation as an agent of change encompasses both automatic and intentional movement through an occupation-based approach, enabling patients to focus on their what they can functionally complete. Occupation and exercise as synergistic interventions were found to empower patients in the recovery process as activity performance would be used as a means using home programs outside of their structured therapy regimen.

And, in an exploratory study, Valdes et al. (2019) aimed to identify therapists' level of agreement with physician-ordered interventions concerning best practices. Survey questions with multiple choice and fill-in formats allowed for therapist's ability to identify and explain their perceptions associated with hand therapy interventions. Of the 744 therapists, 20% reported adherence to physician's intervention orders. The study further concludes the role of therapists in proving current best practices to increase patient outcomes. These findings are further supported by a cross-sectional study, in which Valdes et al. (2023) examined information on how hand therapists incorporate OBI within clinical practice and the associated outcome measures that are used to measure client's occupational performance. A web-based sixteen-item survey was administered to therapists associated with the American Society of Hand Therapists (ASHT). Results of the study included therapist perspectives on their utilization of OBI incorporation where out of 311 therapists, only 41% reported they used OBI 26-50% of the time. This study also led to therapist reports of the need for routine or consistent incorporation of OBI into practice, however, there are limitations in the form of time, space, and equipment. With these statistics in mind, the creation of the OBI manual allowed for consistent therapist use by having a resource readily available as an educational resource.

Time, Space, and Equipment

With the incorporation of OBI, therapists have reported constraints to the full implementation of these practices. Therapists who currently utilize OBI are faced with barriers to implementation including time, space, and equipment limitations (Phillips et al., 2019; Psillas & Stav, 2020). Through a mixed-methods survey design, Phillips et al. (2019) examined the current trends and barriers associated with OBI in hand therapy settings. Using surveys, two open-ended reflections, and thirteen 5-point Likert scaled questions, 72.2% of therapists agreed with placing

an emphasis in participation and engagement through the use of occupations. Following this statement, participants were asked about their level of confidence in successfully incorporating OBI within their treatment sessions. Results demonstrated only 55.6% of therapists either agreed or strongly agreed with the statement. Barriers to incorporation were asked of the participants in which they noted three primitive barriers including lack of time, unsupportive environment, and equipment needs. These findings are further supported by Psillas and Stav (2020) grounded theory study in which the authors aimed to examine the context surrounding OBP utilization. Results correlated with the above findings as barriers reported in this study included: insurance restraints, supplies and resources, client motivation, and therapist experience. There are overarching barriers to the incorporation of OBI within settings as time, space, and equipment limitations arise and vary among clinic sites.

And, in a phenomenological study, Stav and Herman (2022) aimed to examine the effect of an occupation-based clinic makeover in reference to patient outcomes and therapist perceptions. Therapists were provided with kits that included tools utilized in occupational tasks including cooking tools, office tasks, painting, woodworking, home management, pet care, etc. A mixture of nine OTs and OT assistants were included in the study. An understanding of occupation-based practice and its barriers was uncovered through a focus group. Two themes were derived from the demographic interview and focus group which included: challenges to occupation-based practice and occupation-based metamorphosis. Challenges to occupation-based practice revolved around therapist's resistance to changing the exercise-based practice they have come to utilize. Occupation-based metamorphosis referred to shifting their previous notions about occupations into practice and reconnecting to the core concepts of OT. The connection of occupations and exercise-based practice aided in the development of the OBI manual for routine

incorporation as therapists will be confined to their current practice regulations while continuing to address patient outcomes to their best ability.

Pairing OBI and Biomechanical Interventions

Patient Outcomes

When considering the incorporation of OBI into practice, a major factor that is considered are patient outcomes. With a combination of historical and current approaches to hand therapy practice, interventions have become a combination of factors. In a RCT, Daud et al. (2016) examined the effectiveness of OBI and therapeutic exercise (TE). Participants of the study were separated into the combination OBI and TE group or TE group. Results of the study concluded that a combination of OBI and therapeutic exercise (TE) produces greater outcomes than TE alone via DASH and COPM assessments (Daud et al., 2016). The study highlights the integration of OBI with current biomechanical treatments. The study further concluded that the addition of OBI into treatment could be utilized from the clinic to home settings. Accessible OBI provides a guide for practice for therapists and their patients. In an RCT, Guzelkukuck et al. (2007) further supported these findings stating the combination of OBI and TE can further influence and guide hand therapy practice. A control group consisting of passive, active assistive, active range of motion, and strengthening exercises coupled with physical agent modalities was compared to a study group consisting of the same program with the addition of twenty-five simulated ADL activities (Guzelkukuck et al., 2007). Results of the study concluded that the incorporation of simulated ADLs can improve performance.

To further support these findings, Spalding et al. (2022) conduced a longitudinal observational cohort study to examine the process of an occupation-based group it its success factors within a rehabilitative setting. Thirty participants were included in the study which

involved being placed into a life skills group, using occupation as the therapeutic agent of change. Three phases of the group intervention included: Group observation, Postintervention semi-structured interviews, and Quantitative intervention. Results of the quantitative intervention concluded that there were statistically significant improvements in goal achievement, occupational performance, satisfaction, and self-efficacy. Furthermore, participants reported the engagement in real-world experiences aided in a transfer of skills to their home environment. Positive patient outcomes were attributed to the inclusion of occupations within their rehabilitation process, further suggesting the need for the inclusion of occupations in settings that demonstrate its absence.

Literature Review Discussion

OBI in a clinical setting can allow for client participation in daily activities. The literature provided a review of hand therapy perspectives on occupations and the growing influence of its incorporation. However, a limitation of the literature includes the limited number of studies directly correlated with OBI provides a weakness. Nonetheless, in the articles mentioned, terminology varied but all directly correlated with occupations within rehabilitation settings. More recent literature on the use of occupations within hand therapy is scarce, however, has been researched within the past five to seven years, indicating its focus on reincorporation. Past and current literature is needed to understand the gaps in practice associated with OBI in hand therapy.

As discussed, rising hand therapy perspectives combine motivation with client-centered treatment as motivation has the potential to drive performance (Rostami et al. 2017). The need for a consistent and definitive role of occupations within hand therapy and routine incorporation can aid in the development of this capstone project as therapists will be able to provide input and

feedback towards the creation of the manual from a student perspective and therapist's perspectives. However, the lack of physical space to incorporate OBIs has hindered the full incorporation of these interventions into practice. Despite full incorporation, positive patient outcomes coupled with OBI and current biomechanical interventions further support the need for a dual-focused approach, guiding therapist decision-making to balance the subjective and objective aspects of performance.

Section Four: Statement of Purpose

The purpose of this quality improvement study was to determine the usefulness of an OBI manual for hand therapists in Southern Nevada. Furthermore, its purpose was to determine the utilization of the OBI manual in supporting client-centered outcomes regardless of diagnosis, age, or population. The identified gaps in the literature were addressed with the implementation of the OBI manual.

Objectives

Evidence has indicated that therapists who use OBI have greater patient outcomes as there is greater follow-through of home exercise programs, leading to shorter treatment times. Shorter treatment time, in this case, means patients reaching their goals and prior level of function within reason to determined protocols. This can allow for caseload management and adequate time to incorporate creativity and OBI within sessions. The objectives of the project were to increase the statistics on therapists who use OBI in treatment sessions, determine the utilization of the OBI manual as a sustainable resource, and gather quality improvement feedback on the manual itself for further development. With this information, the hypothesis for the study is as stated, “Creating an accessible OBI manual for therapist accessibility in an OP hand clinic is feasible”.

Section Five: Theoretical Framework

The biomechanical frame of reference (FOR) has been used in hand therapy as a remediation approach (Jack & Estates, 2010). This FOR focuses on impairments that directly limit occupational performance by acquiring the motor skills needed to perform occupations (OTTheory, n.d.). The primary goals of using this framework include the prevention of a decline in range of motion and the promotion/maintenance of existing motor movements. Impairment progress is noted through objective measurements that focus on strength, range of motion, overall functional capacity (Robinson et al., 2016). Various interventions are utilized within this FOR with an emphasis on TE. The biomechanical FOR has been shifting to an occupation-based approach in hand therapy as therapists are placing client-centered treatment at the forefront of care.

The shift to an occupation-based approach and overcoming barriers to client-centered practice can be achieved through the Client-centered Strategies Framework (CSF). The primary goal of the CSF is to aid practitioners in the creation of environments and contexts that promote client-centered practice. The five categories of the framework include personal reflection, client-centered process, practice settings, community organizing, and coalition advocacy (Restall et al., 2003). Through personal reflection, practitioners use their individual values and beliefs to shape their practice. The process of client-centeredness refers to the consideration of all aspects of the client within their contexts. Practice setting refers to the direct practice environment in which the patient is being treated in, such as an outpatient clinic. Community organizing involves providing support and empowerment for individuals within the community, this could be organization or company-based in terms of the therapist community. Lastly, coalition advocacy attributed to practice being influenced and guided by an established system and advocacy for

changes. These five categories can aid in problem-solving and rationale for students and therapists alike as they engage with patients in the profession.

In addition to the biomechanical FOR and CSF, the overarching theoretical model that was used to guide this project is the person-environment-occupation-performance model or PEOP. From a therapist's perspective (person), therapists will use the manual as an educational tool (occupation) within their clinic (environment) to implement occupation into treatment sessions, therefore hopefully aiding in their overall treatment (performance). With the use of this model, its focus is targeted on the interconnectedness of each element and how these interactions can produce varying results. The PEOP emphasizes occupations and how performance in these occupations is a direct result of an individual's context. Interventions that can be utilized within this framework can be geared directly towards occupation while placing importance on the person/individual through client-centered, occupation-based treatment. The goal for this FOR in this study specifically was to provide this educational manual to therapists, who will then educate their patients, with an overarching goal of patients being able to use and perform their chosen occupations in their naturalistic environment (carry-over to home setting).

Hand therapy utilizes the biomechanical FOR to gather objective measurements for their patients through the process of therapy from evaluation to discharge, however, with the addition of the PEOP model, patients can engage in their preferred occupations while objective measurements would still be documented to demonstrate progress. The combination of the two could enhance client-centeredness as considerations for all aspects of functional mobility and occupations would both be considered.

Section Six: Methodology

This quality improvement project was developed at ATI Physical Therapy. The study used a mixed-methods research design for program development and quality improvement feedback.

Agency Description

The development of the OBI manual capstone study took place at ATI Physical Therapy's St. Rose location. ATI first launched in Southern Nevada in 2016 with a mission to serve as a rehabilitation provider specializing in evidenced-based therapy, sports medicine, worksite solutions, and specialty therapies (Athletic Therapeutic Institute [ATI], 2016). ATI's overall outpatient clientele are individuals seeking orthopedic services for preventative care, non-operative, conservative treatment, and post-operative treatment. ATI's business model includes becoming partnered with, purchasing, and managing existing practice locations to assist employers in healthcare and workplace solutions (ATI, n.d.).

Study Design

This quality improvement study followed a mixed methods convergent design, in which qualitative data first informed quantitative data through the pre-interview questionnaire. Secondarily, quantitative data informed post-interview questionnaire responses, in which qualitative quotes were used to support the statistical results (Creswell & Plano Clark, 2017).

Sample Design

Sampling for this study was completed through convenience and non-probability snowball sampling via word of mouth. Participants were therapists identified first by the Lead

therapist as to appropriateness for the study based on years of experience, location, caseload at the clinics in Southern Nevada.

Participants

Target Population

The target population of this project were occupational therapists employed at ATI in southern nevada providing outpatient hand therapy treatment of common upper extremity diagnoses. Treatment of all UE conditions from finger to shoulder are evaluated and treated, however, in this specific setting, shoulder injuries and conditions are treated by physical therapists. The creation of an OBI manual for this site was chosen due to the collaborative nature of the facility between therapists, physicians, and patients. Occupational therapy is housed inside a physical therapy clinic with physical therapists as part of the interdisciplinary team. The inclusion of OBI in this setting can allow for utilization and education from therapist to patient and therapist to therapist.

A minimum of five participants for the study was reached. Demographic characteristics of the population were noted to provide a summary of the sample. It is notable to mention that 80% of the sample primarily only had one year of experience in hand therapy. Years of experience in comparison to years in hand therapy is an important factor to note for this study as new and emerging hand therapists in the field are still becoming versed in the setting. Therefore, having an accessible resource aid, such as the OBI manual in self-education and patient education.

Recruitment

Recruitment of the target population began before the first information session, within the first week of the study. During this time, the student researcher introduced herself and the full

description and expectations of the capstone study. The lead therapist aided in the recruitment process through word of mouth to therapists at other ATI locations. In addition, the student researcher provided an email to potential participants with the option to ask clarifying questions prior to and throughout the duration of the study. The information session presentation provided detailed information for the therapists to consider before agreeing to participate (see Appendix E). The minimum number of therapists to be recruited for the study was five, due to the variability of schedule conflicts. Zoom was offered to therapists who had time constraints due to scheduling. Incentives for participation and completion of the study included a twenty-five-dollar gift card and a completed OBI manual (see Appendix H), based on their input and feedback, in a spiral-bound document for personal use.

Inclusion Criteria

For this study, therapists currently practicing at ATI, physical or occupational were included. However, with occupational therapists being the primary therapists receiving referrals for upper extremity (UE) diagnoses within this organization, they became the sole participants. The inclusion criteria for this study was selected to offer various levels of insight for feedback with therapists having varying levels of experience. Participating OTs were the primary source for feedback as they were the ones directly providing treatment for UE diagnoses which was associated with OBIs in this study.

Data Collection

Instruments

The first phase of the study included gathering demographic questions and semi-structured pre-interview questions at the first information session. Basic sample characteristic questions included year(s) of experience as an OT and as a hand therapist. Semi-structured

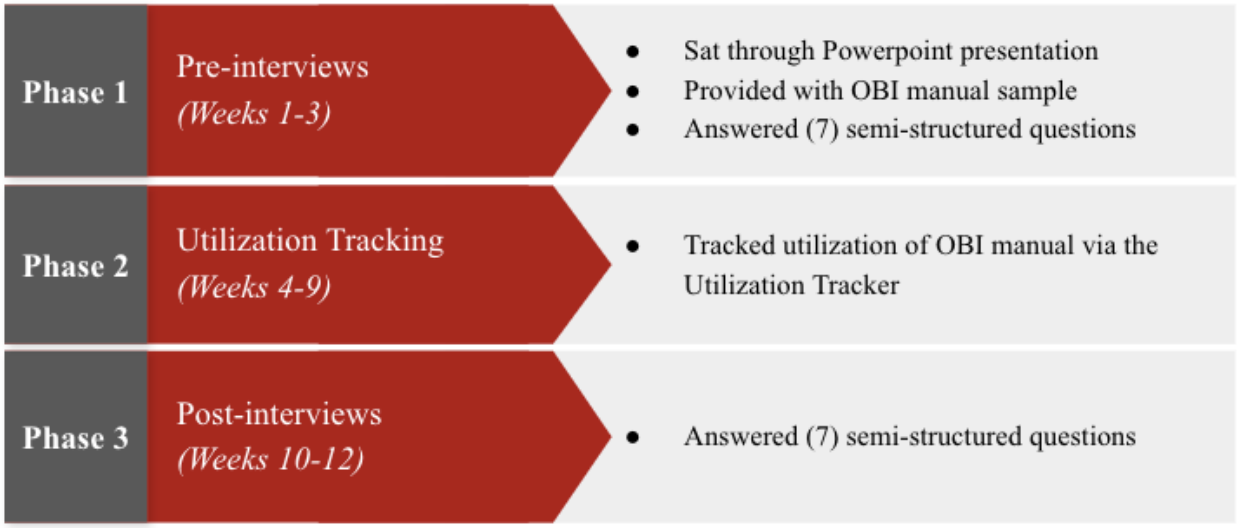
interview questions were asked such as, “What does occupation mean to you?”, “What educational tools do you currently use to teach occupation to patients?", and “What amount of time are you currently spending on return to occupation?”. These pre-interview questions generated by the student researcher were reviewed by experts in OT to assess each question's clarity for content validity. Questions were asked twice to each therapist for consistency and reliability of responses. Pre-interview responses assisted in the creation of the OBI manual's formatting, and organization of the Utilization Tracker (UT) categories of resource type, education type, implementation type, and diagnosis. Resource type refers to the therapist using it as a patient handout, the full manual, or a specific page number. Type of education referred to therapist reference versus patient education. Implementation type refers to when the therapist found themselves providing the education whether it was during the initial evaluation, regular session, or at discharge. Lastly, they were asked to document the diagnosis they used it for. During the second phase, the UT was implemented along with the completed OBI manual created based on the pre-interview responses. The final phase of data collection was a post-interview with semi-structured questions asked of the starting participants. Triangulation was conducted with a separate student researcher's assistance for the examination of the derived themes from post-interview responses. The data and coding elements were shown to a separate researcher with an explanation and reasoning of how each theme was generated to cross-verify theme interpretations.

Procedures

Procedures for this study were held over twelve weeks. The first three weeks were allotted for introduction and pre-interviews, followed by six weeks of utilization tracking. The

final three weeks of the study were allocated for post-interviews. Procedures for the study were broken up into three phases as demonstrated in Figure 1.

Figure 1: Participant Procedures by Phase



Phase I – Introduction and Pre-interviews

After recruitment of five therapists within the first week, participants individually sat through a pre-interview. The pre-interview lasted between 30-40 minutes in person and via Zoom. During this initial session, pre-interview questions were answered by each participant to gather feedback on the creation of the OBI manual (see Appendix B). Each information session included a PowerPoint presentation which included background information and participant expectations. Following the presentation, participants were asked seven open-ended questions about the usage and perceptions of the need for the occupations within hand therapy. Responses were noted verbatim on the student researcher's laptop. A sample diagnosis was shown to each

therapist to provide an insight into what each diagnosis would include in terms of description, protocol(s), and pictures/visuals (see Appendix F). This sample was then used for participants to answer the final question within the pre-interview regarding OBI manual formatting. Participants were prompted to answer with honesty and provide insight into their lived experiences within the field.

Phase II – Tracking Utilization

Following the pre-interviews, therapists were provided with a physical copy of a completed OBI manual, based on their responses, for their personal use (see Appendix G). Along with the OBI manual, a UT was also left with therapists to document their use over six weeks (see Appendix D). Six physical copies of the UT were provided for individual therapist use throughout the study's six-week duration and used to initiate OBI during treatments. The UT's purpose was to gather data on therapist usage for each category, resource, education, implementation, and diagnosis. Each week, therapists manually tracked how many times they used the manual for each category. All categories were used to uncover the frequency given accessibility to the OBI manual. At the end of the sixth week, the student gathered all UTs for data collection and analysis.

Phase III – Post-interviews

The last phase of the study included the post-interviews for each therapist. The post-interview offered a second measure of feedback for the OBI manual. Participants were asked seven open-ended questions to gather quality improvement feedback on the manual contents via the UT and the overall usage of the OBI manual (see Appendix C). Post-interviews lasted 20-30 minutes in with three therapists in-person interviews and two over Zoom. Interviews were

conducted for each therapist over three weeks. Direct feedback on the manual was provided by each therapist and responses were noted for data collection.

Data Analysis

Thematic analysis was used to analyze qualitative data of the pre and post-interviews following Braun and Clarke's reflexive thematic analysis approach, in which coded themes are a direct reflection of the student researcher's perspective and knowledge (Bryne, 2022). Descriptive statistics and frequency distribution were used to analyze the quantitative data from the UT. Both the pre and post-interview feedback questionnaires were thematically analyzed to generate themes from open-ended responses. First, the pre-interview was examined using thematic analysis in which the student researcher uncovered codes to decipher commonalities within individual question responses. This method was chosen due to cost-effectiveness and the ability of the student researcher to use the uncovered themes to create the OBI manual and UT categories. The UT was used to track the frequency and usage of the manual's contents based on the UTs four categories of resource type, education type, implementation type, and diagnoses. Descriptive statistics in terms of frequency distribution was generated through Microsoft Excel. Raw data was inputted into Excel for each four categories. Frequency distribution was used to demonstrate trends within the data and provide comparisons within each category. After the frequency distribution was completed for each category, relative frequency was conducted to determine how often a trend occurred within the data sets. Lastly, post-interview feedback was also evaluated through thematic analysis. Thematic analysis allowed for the generation of themes within the provided post-interview feedback and what was most prominent for future development of the manual's contents.

Section Seven: Ethical and Legal Considerations

To protect confidentiality all participants were provided pseudonyms of letters A-D. The principle of beneficence was adhered to as the manual was created with evidence-based standard protocols. Continued participation in the study was provided through emailed reminders to sustain therapist participation in a non-intrusive manner. Narrative information gathered at pre and post-interviews was kept in a password-protected computer document. Through the narrative data and UT, no identifiable data were recorded.

Section Eight: Results

This twelve-week study with n=5 participants was analyzed by pre-interview, UT, and then post-interview results.

Sample Characteristics

A total of five participants completed the pre and post-interviews (*n*=5). Participants also completed the UT for six weeks. Most participants have been hand therapists for one year (80%). Of those participants, each had less than 3 years of experience in the OT profession. One participant had 22 years of experience which overlapped with their years as a hand therapist.

Table 1. Demographic Characteristics of the Sample

	n=5	%
Years of Experience		
	1 year	40%
	1.5 years	20%
	3 years	20%
	22 years	20%
Years in Hand Therapy		
	1 year	80%
	22 years	20%

Note. Percentages were used to highlight differences in experience in comparison to years in hand therapy.

Pre-Interview Themes

Open-ended responses were collected from the pre-interview questionnaire and analyzed for themes (see Table 2). Seven questions were asked to each therapist with open ended follow up, revealing seven themes (see Appendix B). These themes were then used to develop the UT for the OBI manual which was then divided into four categories of resource type, education type, implementation type, and diagnoses. Within the category of resource type, resources used within the clinics included visuals, handouts, or were audiovisual, generating a theme of multimodal

learning. Regarding the category of education type, materials used in the clinic for education were demonstrations, visuals, and handouts which generated a theme for multimodal teaching. Regarding perceptions of occupation two themes emerged meaningful, individualized tasks, and maintaining individual goals. This generated the category of implementation type as occupations can be discussed at evaluation, individual sessions, or discharge. These were noted along with the theme of spending 5-1 minutes on return to occupation. Regarding the category of diagnoses, outpatient diagnoses treated in the six clinics varied, however, were all common upper extremity conditions.

Table 2. Themes Derived from Pre-interview Responses to Guide OBI Manual Contents

Sample size	Outpatient therapists (n = 5)
Themes	Therapist Feedback Examples
Perception of Occupation	
Meaningful, individualized tasks	• "Important things you need to complete during the day" • "Daily tasks that are either mandatory or extracurricular" • "Anything we do that makes us who we are, is culturally based on how we complete tasks. Using the Canadian Occupational Performance Model, we can put spirituality of individuals in the front"
Maintaining individual goals	• "Updating home exercise program as it applies" • "Keeping track of progress and individualizing treatment" • "Asking in the beginning what occupations are they limited in to address the current situation and use them to educate and modify activities"
Clinic Engagement in Occupation	
Discussion-based with a focus on present limitations	• "Asking questions during evaluation to determine limitations" • "During the first session, offering activity modification and joint protection" • "During manual treatment discussions" • "Having discussions, but there is a lack of materials/resources as 10-15% of activities are preparatory based"
Time Spent on Return to Occupation	
5-10 minutes per individual	• "10 minutes" • "5-6 minutes"
Clinic Education Materials	

Multimodal Teaching	• "Verbal discussions and education of available online tools" • "Demonstrations" • "Handouts or home exercise programs" • "Teach-back and writing information down"
Formatting Preferences for Education	
Multimodal Teaching/Learning with Resources	• "Visuals and timelines" • "Surgery protocols with visuals" • "Anatomy involved in each diagnosis" • "Handouts, audiovisual, or podcasts"
Outpatient Diagnoses	
Common upper extremity injuries	• "Trigger finger, De Quervain's, Duputrens, Olecranon fracture, Carpal Tunnel Syndrome, Cubital Tunnel, Lateral/Medial Epicondylitis, Metacarpal fractures" • "Elbow injuries, De Quervain's Tenosynovitis, Trigger Finger, Ulnar Nerve Lesions, Carpal Tunnel Syndrome, Parkinson's Disease, Arthritis"

Note. Outpatient therapists (n = 5), Semi-structured, open-ended questions; individual interviews.
Note. Qualitative thematic analysis was used to obtain themes from therapists' feedback during the pre-interview.

OBI manual and Utilization Tracker

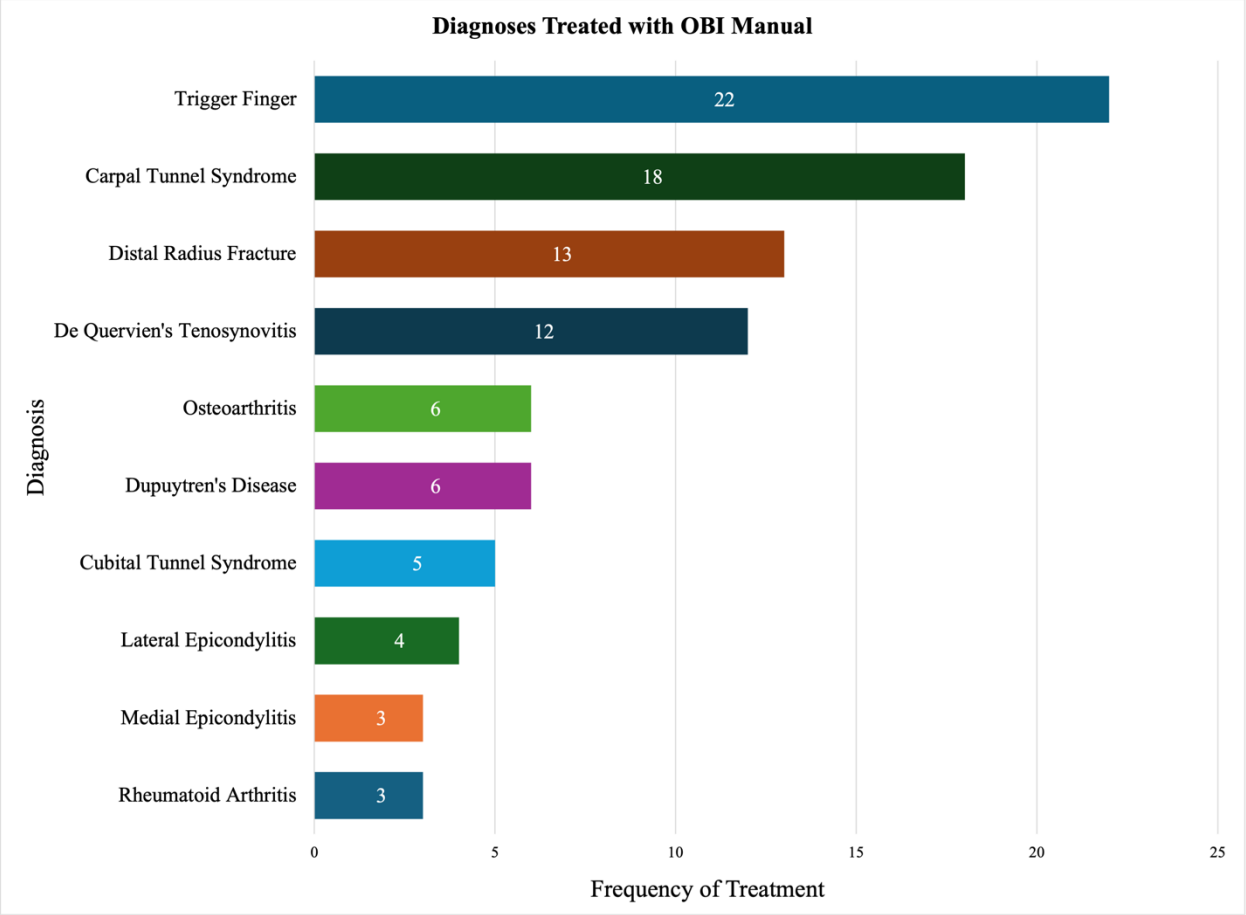
The pre-interview questions and OBI manual guided the UT categories of resource type, education type, implementation type, and diagnoses. Examination of the four individual categories of the UT was completed through Microsoft Excel for descriptive statistics of frequency distribution (see Table 3). Frequency of resource type included handouts, full manual, and visual display. Results demonstrate how the OBI manual was used primarily for visual display of the included content (f=27). For example, showing a patient a specific page when a handout could not be produced. Relative frequency distribution for using the OBI manual as a visual display was greater when compared to the total uses for all resource types (f/n=54%). Regarding the category of education type, education with the use of the OBI manual was either for therapist reference or patient education. Results demonstrated the manual was primarily used

for patient education (*f/n*=89%). The category of implementation type was split into three subcategories of evaluation, session, or discharge to describe when therapists used the manual as a resource for patient education. Utilization of the manual at initial evaluation was used a majority of the time (*f/n*= 80%). Secondly, implementing the manual during regular treatment sessions was noted at 18%. The last category examined the frequency distribution of 11 common diagnoses seen in the specific outpatient hand clinics. Of the common diagnoses, trigger finger was most commonly treated with the OBI manual. Of the 92 uses, trigger finger was highly treated over the rest of the diagnoses 24% of the time, and carpal tunnel syndrome following at 20%. Individual diagnosis distributions are illustrated in Figure 2.

Table 3. Frequency Distribution of OBI Manual Categories

Frequency Distribution of OBI Manual Resource Type		
	Frequency (*f*)	Relative Frequency (*f/n*)
Full Manual	6	12%
Handout	17	34%
Visual Display	27	54%
Grand Total (*n*)	50	
Frequency Distribution of Type of Education		
Patient Education	49	89%
Therapist Reference	6	11%
Grand Total (*n*)	55	
Frequency Distribution of Implementation Type		
Discharge	1	2%
Evaluation	39	80%
Session	9	18%
Grand Total (*n*)	49	

Figure 2. Diagnoses Treated with OBI Manual



Post-Interview Themes

Post-interview questionnaire responses were collected from each participant. Responses were also coded for commonalities through thematic analysis (see Table 4). Seven questions were asked to each therapist with some questions requiring further breakdown for understanding (see Appendix C). Seven themes emerged from the open-ended responses to gather feedback on

the further development of the manual for therapist accessibility. The first theme derived from therapists' overall perception of the manual was that it was primarily used as an educational resource. The second theme to emerge was that the manual was an effective use of time. Correlating with this theme is the third theme, in which therapists utilized the manual during initial evaluations. When it came to therapists' perception of how patients viewed the education provided through the manual, the theme was overall patient receptiveness. The sixth theme focused on therapist's perception of higher outcomes given the manual as an educational tool. Therapists often reported the need to set expectations and provide education to achieve higher outcomes. Lastly, the question of, "What could be added to improve your access and utilization of the manual?" generated a theme of additions being made to the manual's contents for higher utilization and feasibility. Results of the study support the need for a sustainable resource, utilization of the OBI manual, and the need for a return to occupation in hand therapy.

Table 4. Themes Derived from Post-Interview Questionnaire Responses

Sample size	Outpatient therapists (n = 5)
Themes	Therapist Feedback
Overall Perception of Manual	
Educational Resource	• "It was good, I found it useful during treatment for education" • "After the noted changes are made, I will be able to give it to patients more" • "It is good to have something on paper during the evaluation for information retainment"
Time Efficacy	
An Effective Use of Time	• "Very educational to have the patient have more information of their diagnosis, especially during evaluation" • "Yes"
Implementation During Treatment	

Patient Evaluations	• Evaluations • Weekly sessions for progressions
Therapist Perception of Patient Education	
Patient Receptiveness	• **“**Yes, as patients consistently ask questions regarding their treatment, it is nice to have reminders and ideas” • “100% they were receptive”
Therapist Perception of Higher Outcomes with OBI Manual use	
Set Expectations and Education = Higher Outcomes	• “Setting expectations and having a physical form to back up the education I am giving was helpful” • “More education is always better, it is nice to have a physical handout to give to people to set expectations” • “I would not have used it if I did not think outcomes would be better” • “They can be, if I had a revised copy I could give patients handouts”
Helpfulness of Manual Contents	
User Friendly	• “Visuals were most helpful” • “Easy to read” • “Organized”
Improvements of Manual Contents	
Additions to Manual Contents for Accessibility and Utilization	• Modalities for quick reference helps student education/support • Making the changes, updates on timelines, accurate to specific to “what we see here” • “Tabs for organization and quick reference, PDF file for printing handouts” • “There were some diagnoses that could be important to include such as flexor and extensor repairs for all zones, treatment plans at specific weeks, neurological conditions, and special testing”

Note. Outpatient therapists (*n* = 5), Semi-structured, open-ended questions; individual interviews.
Note. Qualitative thematic analysis was used to obtain themes from therapists’ feedback during the post-interview.

Section Nine: Discussion

The purpose of this study was to create an accessible OBI manual for therapist accessibility in an OP hand clinic. Throughout the study, participants often reported the consistent need for the OBI manual as a resource not only for themselves but mainly for their patients. These reports are evidenced by the post-interview responses and use of the manual overall. The study concluded the OBI manual's feasibility within outpatient hand clinics offered an accessible resource for therapists.

Sample Characteristics

The sample included five therapists providing treatment within outpatient hand therapy clinics. With 80% of the participants (*n*=4) having been in hand therapy for a minimum of a year, it demonstrates the significance of having a resource for their utilization. Therapists consistently reported the need for a resource they can have on hand during treatment that is easy to reference in terms of treatment from exercise to occupation. The one therapist who had twenty-two years of experience offered insight into the manual contents to better assist with accuracy before using it for patient education. The demand to have a consistent "all-in-one" reference guide reflects the need for occupation as an agent of change coupled with occupation and exercise as synergistic interventions (Collis et al., 2022). There was an ample amount of data collected from the sample, however, with its small size, it limits generalizability to the population. Nevertheless, participants indicated the need for the OBI manual within their clinics to be used for therapist, patient, and potential student access.

The Need for a Sustainable Resource

Pre-interview responses indicated the lack of time spent on return to occupation. Despite therapists providing definitions for what occupation meant to them, they reported only spending 5-10 minutes on occupation throughout treatment. However, they expressed the need for an

organized resource to aid in the facilitation of each diagnosis regarding protocols and return to occupation. Eight themes were derived from the pre-interviews. Of the eight, it can be inferred that a multimodal resource is useful for their discussion-based patient education. Hand therapists primarily focus on manual treatment and exercise, losing sight of how occupations can be incorporated (Takata et al., 2019). A direct quote, “Most of our activities are preparatory based”, was stated, meaning biomechanical interventions are utilized over task-oriented training for occupational performance. Although therapists understand how occupations are the core of our practice, they are aware of the disconnect associated with occupations in hand therapy. A resource such as the OBI manual can enable re-engagement in life roles within the treatment process and can close the gap between occupation as a means and therapeutic exercise alone (Collis et al., 2022). Therefore, therapists were open to an OBI manual to guide treatments with their input to ensure it related to their specific clinic's patient population. The pre-interview themes teach us that a highly detailed educational and sustainable resource is viable within hand therapy.

Utilization of the OBI Manual as a Resource

Over the six-week implementation period, data collected from the UT demonstrated feasible results in terms of utilization. As shown in Table 2, patient education was a priority in maintaining goals during treatment in terms of education type. Visual displays of the OBI manual content was primarily used for patient education in regard to resource type. A direct quote of, “This was never shown to me before” was stated multiple times during initial evaluations. Patients also reported they were unaware of “what was going on” in terms of diagnosis-related anatomy. The role of therapists in this sense is patient education, as adherence to physician orders can lack the education needed to set expectations for therapy (Valdes et al.,

2019). It was also evident that some patients had multiple diagnoses, therefore providing them with physical handouts of their treatment with education on activities directly related to their limitations helped to structure an effective home exercise program (Daud et al., 2016). Regarding implementation type, patient education was provided during initial evaluations, which correlated with post-interview responses in which education provided during evaluations helps to set expectations for goal progressions. Although the results indicated that implementation of the manual was primarily during evaluations, therapists can continue to update treatment plans during individual sessions. Therapist-patient dialogue and collaboration with the use of a sustainable resource throughout the OT process can ensure patients are performing their occupations while continuously generating client-centered care.

The Need for Return to Occupation-Based Hand Therapy

The study's main objective was to create a feasible OBI manual to increase hand therapist accessibility of OBIs. Through the open-ended post-interview responses, there is evidence to support its feasibility. Commonalities within responses such as, “It was good, I found it useful during treatment for education” and “It is good to have something on paper during the evaluation for information retainment” reflect the need for an OBI manual within hand therapy as therapists further reported that using the manual was an effective use of their time during treatment as it offered a secondary resource with visual aids. Given the time constraints of clinics with high caseloads, therapists still found time to integrate the manual as an added portion of education during treatment. Integration of the OBI manual was primarily used during evaluations where expectations could be set. In addition, its user-friendliness offered a take-home reference for patients to track their specific protocol guidelines. The manual was described as a “tool” to assist therapists during discussions as it created “evidence” to support the education they were

providing to their patients. Occupations were discussed on a case-by-case basis with therapists offering education on how to adapt or perform daily occupations within the allowable protocol timeframe.

Aside from therapist and patient education, it is important to note that student OTs were present during the course of the study. One therapist offered the OBI manual as a study guide for a student during their first week at the clinic. This correlates with Fiori and Majeski (2024) study in which students felt underprepared to enter hand therapy during fieldwork as the OBI manual provided an additional resource for students. A common comment that was made by some therapists when discussing the OBI manual was “I wish I had this when I was a student”, indicating the need for an efficient, user-friendly resource when integrating into the field. Providing students with such a resource can aid in the routine incorporation of occupations by using occupation and exercise as synergistic interventions within hand therapy (Collis et al., 2022). Lastly, therapists reported the need for further improvements of the manual to increase their usage for themselves, patients, and potential students. Routine incorporation of occupation as a means through the use of the OBI manual indicated a need for the return to occupation-based hand therapy as post-interview responses generated high receptiveness overall.

Section Ten: Limitations of the Project

Possible limitations of the study included barriers to the utilization of the manual during the six-week intervention. The potential for participants to complete the UT at their convenience could limit the truthfulness of responses. There were also time constraints due to a high caseload and the inability to provide one-on-one care to guide patients through the full potential of the manual from evaluation to occupation. A limited amount of space and tools to fully incorporate all occupations into treatment with provided education was also noted as clinics rely on donations for equipment related to occupations that are not simulated. Time constraints arose due to therapist response, treatment protocol timelines, and project deadlines. Understandably, each diagnosis was not utilized to its full potential as there is no control over the diagnoses that were seen during the timeframe. The original design of the study did not account for the increased time it took to create the manual prior to implementation, therefore was shortened to six weeks. Future research should account for these limitations when expanding on an OBI manual use within hand therapy.

Section Eleven: Conclusion

Summary

In conclusion, the need for this project aims to close the gap in research on OBI for therapist use in hand therapy. Research and literature report therapists' recognition of the significance of utilizing occupation within treatment, however, there is a lack of research on its use within hand therapy. The purpose of this quality improvement study was to determine the usefulness of an OBI manual for hand therapists in Southern Nevada. The secondary purpose was to determine if the utilization of the OBI manual supported client-centered outcomes regardless of diagnosis, age, or population. The overarching result of the study was the incorporation of the OBI manual was useful to hand therapists as they were able to use it for interprofessional collaboration, and patient education, therefore increasing occupations as a primary focus during treatment to effectively reimplement and rediscover the value of occupation within hand therapy.

Recommendations

Although the target population for the study was achieved, a larger sample size of therapists could be included for generalizability. Along with more therapists, it would benefit the study to incorporate various clinics as ATI is a sole company within Southern Nevada with its standards of practice. The inclusion of multiple companies could aid in gathering data from different population perspectives.

Implications for Research

Future research on the inclusion of OBI into hand therapy should be conducted. The inclusion of a feasible accessible resource within hand therapy could aim to close the gap in research from varying perspectives. Throughout the study, fieldwork students were present at two clinics. These students reported the need for the manual as a resource for fieldwork. This

further proves Short (2018) examination of therapists accepting students with the appropriate preparation. Therefore, future studies should include student perceptions of such a resource as they integrate into hand therapy.

Implications for Practice

With hand therapy being a specialty practice within OT, it is important to continue to encompass OT domains within each practice. Incorporated knowledge of occupations can further patient success as the UE plays a significant role in occupational performance. Integration of OBI as it pertains to individual diagnoses can aid in existing biomechanical treatment methods. OTs have unique insight into how occupations shape performance, therefore inclusion of them within hand therapy cannot be lost.

Implications for OT

From a larger scale, OBI can be used to further support OT as a profession as it highlights the domain of occupation at the center of care. Reintegrating occupation in hand therapy can elicit holistic practice as a patient diagnosis would be a piece of the whole picture. OT strives to incorporate all domains within practice, therefore taking into account how an UE condition impacts occupational performance could lead to higher outcomes and positive patient perceptions. With an accessible and sustainable resource, OBIs can continue to define their role within hand therapy.

Appendix A
Definitions

Occupations:

- **Conceptual definition (Dictionary definition):** The everyday activities that people do as individuals, in families, and with communities to occupy time and bring meaning and purpose to life (American Occupational Therapy Association [AOTA], 2020).
- **Operational definition (Application to study definition):** Activities that individuals engage in that pose importance in their daily routines.

Occupation-based:

- **Conceptual definition:** Practice where "doing" of occupation is the main ingredient in assessment, intervention, and measure of outcomes (Fisher, 2012).
- **Operational definition:** Utilization of occupations as a means to achieve goals and outcomes for individuals.

Occupation-based intervention:

- **Conceptual definition:** Interventions where the occupational therapist uses engagement in occupation as the therapeutic agent of change (Fisher, 2013).
- **Operational definition:** The use of occupations as a primary means to achieve performance-related goals.

Biomechanical approach:

- **Conceptual definition:** An approach to occupational therapy that focuses on the movement and factors that facilitate and inhibit movement (Molineux, 2017).
- **Operational definition:** A focus on how forces on the body limit range of motion and its effect on occupational performance.

Accessibility

- **Conceptual definition:** Being able to be reached or obtained easily.
- **Operational definition:** Opportunity to acquire information efficiently.

Appendix B

Pre-Interview Questionnaire:

1. What does occupation mean to you?
2. What educational tools do you currently use to teach occupation to patients? *(Rank the methods that are currently utilized to educate patients)*
3. What activities can be done at the end of each session that would lead to occupation?
4. What are the most common diagnoses treated? *(Can you identify 5-10 of the most common diagnoses?)*
5. What amount of time are you currently spending on return to occupation? *(In terms of patient education)*
6. What does the amount of time spent on occupation entail?
7. What formatting is most helpful? *(Visuals, tables, etc.)*

Appendix C

Post-Interview Questionnaire:

1. What are your overall thoughts about the manual? *(Did you find it useful? What components did you utilize most often?)*
2. Was this an effective use of your time during a treatment session?
3. When did you find yourself implementing this *(Evaluation, individual session, discharge, progress note)*?
4. Do you think patients were receptive to perform these actions given the education?
5. Do you think outcomes were higher with provided education?
6. What was most helpful? *(Visuals, format, timeline, etc.)*
7. What could be added to improve your access and utilization of the manual?

Appendix D

Weekly Utilization Tracker

Weekly Utilization Tracker				
Therapist	**Resource Type**	**Type of Education**	**Implementation Type**	**Diagnosis**
A				
B				
C				
D				
E				
F				

Utilization Tracker Key	
Resource Type	Handout, full manual, visual display
Type of education	Therapist reference, patient education
Implementation type	Evaluation, individual session, discharge
Diagnosis	Diagnosis used for

Questions/Comments

Appendix E

Information Session PowerPoint

Feasibility of an Occupation-Based Intervention (OBI) Manual for Therapists in Outpatient Hand Clinics

Mia Moralez OTD/S

With mentorship from Casey Marano, MS, OTR/L, CHT
and Donnamarie Krause, PhD, OTR/L, FAOTA

UNLV

Introduction

Does the incorporation of an occupation-based intervention (OBI) manual in an outpatient hand therapy clinic increase accessibility to OBI?

Problem/Overview

- Biomechanical interventions are most commonly used due to medical model
- OTs make up the majority of CHTs, accounting for 85%, whereas PTs account for the remaining 15%
- 7.6% of therapists in Nevada work in the outpatient (OP) setting

Lack of research:

- Practitioners have continued to report the lack of meaning associated with OBI
- Can the incorporation of OBI provide increased outcomes in outpatient settings

Proposed Solution

- Creating a manual for OBI for therapist accessibility
- Encouragement of reincorporating OBI into hand therapy treatment
- OBI as an extension to biomechanical interventions

UNLV

Statement of Problem

Perceived Problem

- Limited research into OBI and Occupation-based practice (OBP) within outpatient hand settings
- Considerable changes with correct terminology between practitioners
  - **Occupation-centered:** Lens we use to research, educate, and create treatments
  - **Occupation-focused:** How we evaluate occupational performance and adapt to individual perspectives
  - **Occupation-based:** Using occupation as the primary intervention (active engagement)

(American Occupational Therapy Association. (2020). Amini, 2008; Henrichon &Toth-Cohen, 2022, Thrombly, 1995)

UNLV

Significance to Occupational Therapy

Knowledge

- Improve knowledge and understanding of occupation-based treatment
- Increase knowledge on diagnosis and their respected protocols
- Utilize knowledge to teach patients and prospective fieldwork students

Patient Education

- Improve patient follow-through of activities to home setting
- Improve patient education via handouts

(American Occupational Therapy Association. (2020). Amini, 2008; Henrichon &Toth-Cohen, 2022, Thrombly, 1995)

UNLV

Literature Review

- A combination of OBI and therapeutic exercise (TE) produces greater outcomes than TE alone (Daud et al., 2016; Guzelkucuck et al., 2007; Hubbuck et al., 2019; Robinson et al., 2016).
- Therapist utilization of OBI in "natural" setting increases patient internal motivation for performance (Rostami et al., 2017; Weinstock-Zlotnick et al., 2017).
- Patient expression of education satisfaction, activity enjoyment, and supportive environments with the inclusion of OBI (Naughton & Algar, 2022; Wilson et al., 2008)
- OBI facilitate functional activity and enhance meaningful participation via therapist perception (Colaianni and Provident, 2010)
- Therapists who currently utilize OBI are faced with barriers towards implementation including time, space, and equipment limitations (Phillips et al., 2019; Psillas & Stav, 2020)

UNLV

Conclusion

Need:

- Bridge current gap in research
  - Occupation-based interventions utilized by therapists within a primarily biomechanical setting

Purpose:

- To increase therapist understanding of how to utilize OBI in supporting patient goals/outcomes
  - Using descriptors and breaking down information on diagnosis, protocols, and gearing towards occupation

Outcomes:

- To create a manual for OBI that can be implemented in an outpatient hand clinic for practitioner use
- To potentially increase therapist knowledge and understanding OBI for implementation into practice

UNLV

Utilization Tracker

Weekly Utilization Tracker				
Therapist	Resource Type	Type of Education	Implementation Type	Diagnosis
A				
B				
C				
D				
E				
F				

Utilization Tracker Key	
Resource Type	Handout, full manual, page number
Type of education	Therapist reference, patient education
Implementation type	Evaluation, session number, discharge
Diagnosis	Diagnosis used for

Questions/Comments

Therapist participation:

- Tracking usage of manual
- Weekly reminders will be sent out via email

Incentive:

- $25 gift card at completion of study

UNLV

Thank you!

Questions?

Appendix F

OBI Manual Sample

CARPAL TUNNEL SYNDROME

DESCRIPTION

Compression of the median nerve at wrist level beneath the transverse carpal ligament.
Symptoms include pain at the wrist level, numbness and/or tingling at the 1st-3rd digits in association with the median nerve.

NON-SURGICAL MANAGEMENT (0-6 WEEKS)

Home Exercises:

- Isolated tendon gliding of FDS and FDP of each digit
  - 2-3x per day, 10 repetitions
- Median nerve gliding exercises
  - 1-2x per day, 10-15 repetitions
- Stretches including Prayer Stretch, Assisted Wrist Extension, etc.

Note: Patient handouts offer informative visuals for home use.

PATIENT EDUCATION

Proper body mechanics aid in symptom management. These include:

- Wrist maintaining a neutral position during daily activities
- Avoid repetitive and/or prolonged wrist flexion
- Avoid prolonged pinching and gripping during daily activities

ORTHOSIS

Wrist immobilization orthosis (Custom-fabricated or pre-fabricated) offering 0-15 degrees of wrist extension. Orthosis is to be worn as much as comfortable during the day and at night if symptoms persist.

Note: Be observant of any pressure from custom or prefabricated orthosis being placed onto the median nerve to avoid increased symptoms.

SURGICAL TREATMENT	CARPAL TUNNEL RELEASE

DESCRIPTION	
Open Procedure: A vertical incision is made at the base of the palm to divide the transverse carpal ligament (TCL) to decompress the median nerve.	**Endoscopic Procedure:** Paired portal holes are created proximal and distal to the TCL. The TCL is then divided through the use of the holes to decompress the median nerve.

3-5 DAYS	POSTOPERATIVE

- Removal of any surgical dressing and application of a large bandage to cover the incision wound (May be performed by treating physician)
- Instruct the patient to keep the area dry and perform only light activities

10-14 DAYS	POSTOPERATIVE

- **Sutures are removed** (Allow 14 days for suture removal for diabetic patients)
  - *Note: Suture removal may be completed by the treating therapist at the request of the surgeon.*
- **Initial evaluation occurs** and includes the following procedures:
  - Assessment of incision for infection, edema, etc.
  - Assessment of median nerve symptoms (Frequency, duration, and location) for sensation and pain
    - Compare to preop symptoms
- **Scar mobilization** (once fully healed) can include:
  - Scar massage using lotion (3x per day)
  - Instruction on the use of a silicone scar pad

- **Desensitization** (once fully healed) can be performed 4-6x per day and includes:
  - Light manual touch
  - Introduction of various fabrics and textures to scar
  - Submerging hand into rice, beans, sand, etc. for graded desensitization
  - Use of a mini massager with lotion
- **AROM & PROM Exercises**
  - Isolated tendon gliding of FDS and FDP of each digit 2-3x per day, 10 repetitions
  - Median nerve gliding exercises 1-2x per day, 10-15 repetitions

4-6 WEEKS	POSTOPERATIVE

- **AROM Exercises** can begin to increase in intensity and include:
  - Light strengthening
    - Powerweb for palmar extension + weight bearing
    - Putty exercises for intrinsic + extrinsic muscles
    - Wrist flexion + extension with forearm support (Gradually include/increase weight held)
  - Grip & Dexterity:
    - Gripper (Large for palmar grip or Digiflex for digits)
    - Pegboard (Large then graded to Purdue)
    - Cones
    - Coins and/or marbles

6 WEEKS	POSTOPERATIVE

- Continued graded exercises and incorporation of ADLs

(Note: Provide same patient education as described on page 1)

3-4 MONTHS	POSTOPERATIVE

- **Patient can resume all ADLs without restrictions**
- **Considerations**
  - Pillar pain can be present after surgery. Avoid pressure being applied to the palm
  - Incorporate padded gloves during gripping and weight-bearing activities
- **Modalities** found to be effective:
  - Ultrasound, phonophoresis, and iontophoresis
- **Continued graded exercises and incorporation of ADLs**

(Note: Provide same patient education as described on page 1)

OCCUPATION-BASED INTERVENTIONS

Description: Interventions where the occupational therapist uses engagement in occupations for performance-related goals.

ADL/IADL PERFORMANCE

OPENING/CLOSING JAR

Muscles used: Flexor pollicis longus, Flexor pollicis brevis, Abductor pollicis brevis, Adductor pollicis, and Opponens pollicis
Ligaments and tendons used: Transverse carpal ligament, flexor tendons
Intervention goals: Ulnar deviation, radial deviation, & grip strength.
Performance Skills: Motor (Object manipulation and body positioning), **Process** (Sustaining an activity and adapting if needed)
Client Factors: Body functions (i.e pain and sensitivity), **Neuromuscular and movement-related functions** (i.e joint mobility and muscle endurance)
Grading the activity:

- Increasing or decreasing the size of the lid
- Adding small objects to be collected from the jar (with the use of digits, tweezers, tongs, etc.)

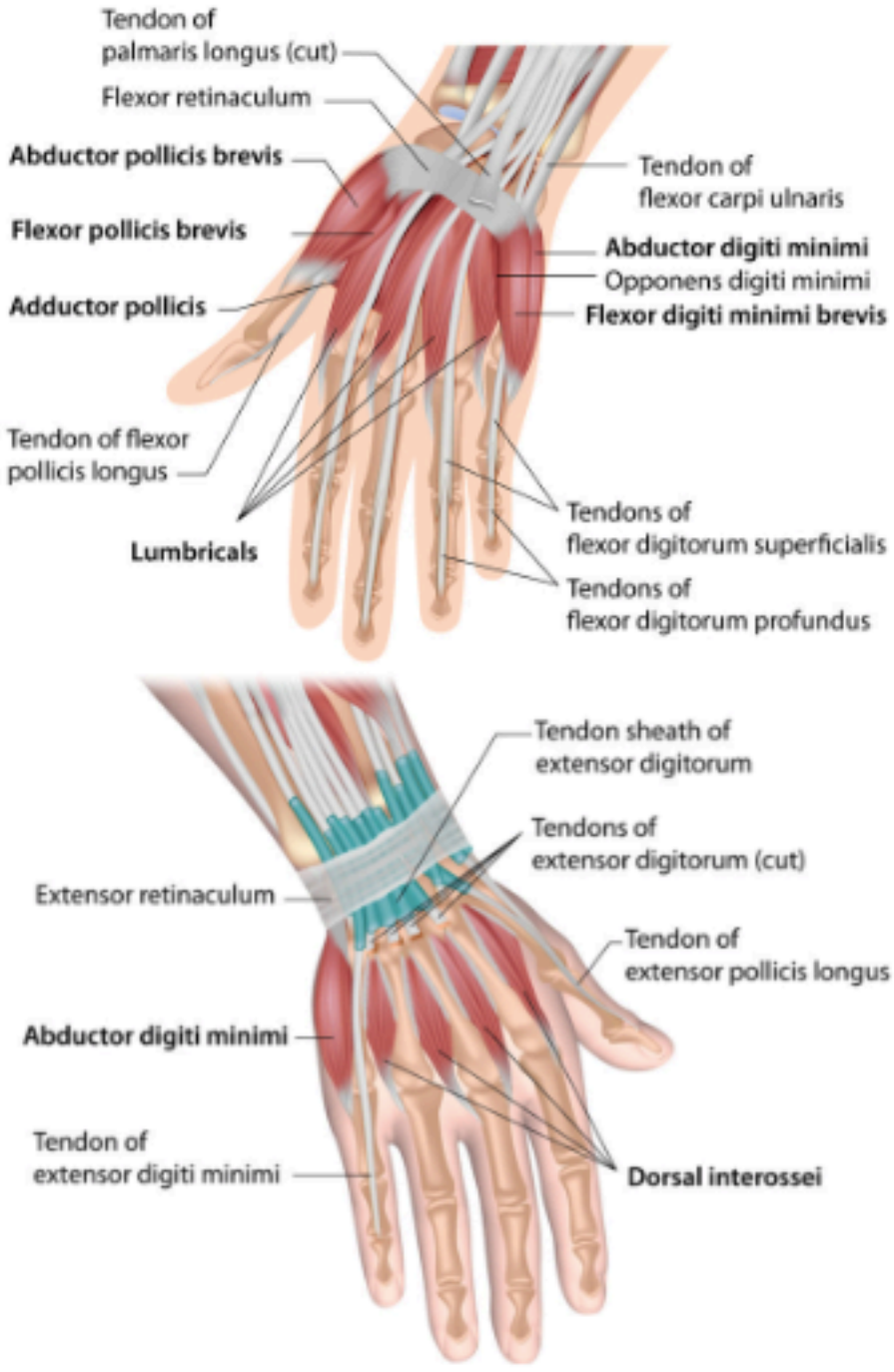
Functional application: Opening doors, cooking, driving, etc.

Appendix G

OBI Manual Intervention

Table of Contents

HAND ANATOMY



4

CARPAL TUNNEL SYNDROME

DESCRIPTION

Compression of the median nerve at wrist level beneath the transverse carpal ligament. Symptoms include pain at the wrist level, numbness and/or tingling at the 1st-4th digits in association with the median nerve.

NON-SURGICAL MANAGEMENT (0-6 WEEKS)

0-6 WEEKS	THERAPY

Home Exercises:

- Isolated tendon gliding of FDS and FDP of each digit
  - 2-3x per day, 10 repetitions
- Median nerve gliding exercises
  - 1-2x per day, 10-15 repetitions
- Stretches including Prayer Stretch, Assisted Wrist Extension, etc.

Note: Patient handouts offer informative visuals for home use.

PATIENT EDUCATION

Proper body mechanics aid in symptom management. These include:

- Wrist maintaining a neutral position during daily activities
- Avoid repetitive and/or prolonged wrist flexion
- Avoid prolonged pinching and gripping during daily activities

ORTHOSIS

Wrist immobilization orthosis (Custom-fabricated or pre-fabricated) offering 0-15 degrees of wrist extension. Orthosis is to be worn as much as comfortable at night if symptoms persist.

Note: Be observant of any pressure from custom or prefabricated orthosis being placed onto the median nerve to avoid increased symptoms.

SURGICAL TREATMENT	CARPAL TUNNEL RELEASE

DESCRIPTION	
Mini Open Procedure: A vertical incision is made at the base of the palm to divide the transverse carpal ligament (TCL) to decompress the median nerve.	**Endoscopic Procedure:** Paired portal holes are created proximal and distal to the TCL. The TCL is then divided through the use of the holes to decompress the median nerve.

3-5 DAYS	POSTOPERATIVE

- Removal of any surgical dressing and application of a large bandage to cover the incision wound (May be performed by the treating physician)
- Instruct the patient to keep the area dry and perform only light activities

10-14 DAYS	POSTOPERATIVE

- **Sutures are removed** (Allow 14 days for suture removal for diabetic patients)
  - *Note: Suture removal may be completed by the treating therapist at the request of the surgeon.*
- **Initial evaluation occurs** and includes the following procedures:
  - Assessment of incision for infection, edema, etc.
  - Assessment of median nerve symptoms (Frequency, duration, and location) for sensation and pain
    - Compare to preop symptoms
- **Scar mobilization** (once fully healed) can include:
  - Scar massage using lotion (3x per day)
  - Instruction on the use of a silicone scar pad

- **Desensitization** (once fully healed) can be performed 4-6x per day and includes:
  - Light manual touch
  - Introduction of various fabrics and textures to scar
  - Submerging hand into rice, beans, sand, etc. for graded desensitization
  - Use of a mini massager with lotion

- **AROM & PROM Exercises**
  - Isolated tendon gliding of FDS and FDP of each digit 2-3x per day, 10 repetitions, Wrist ROM exercises
  - Median nerve gliding exercises 1-2x per day, 10-15 repetitions

4-6 WEEKS	POSTOPERATIVE

- **AROM Exercises** can begin to increase in intensity and include:
  - Light strengthening
  - Grip & dexterity

- Continued graded exercises and incorporation of ADLs (Note: Provide same patient education as described on page 4)

3-4 MONTHS	POSTOPERATIVE

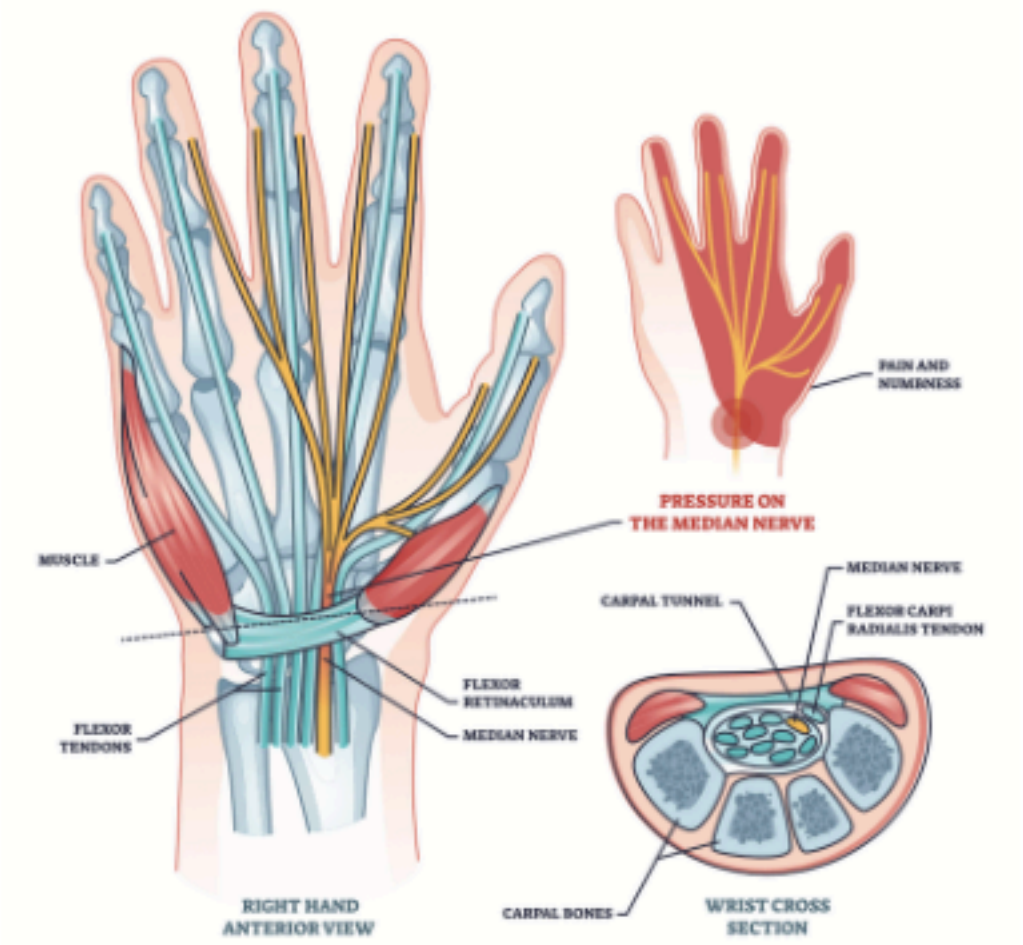
- **Patient can resume all ADLs without restrictions**
- **Considerations**
  - Pillar pain can be present after surgery.
  - Incorporate padded gloves during gripping and weight-bearing activities
- **Modalities** found to be effective:
  - Ultrasound, phonophoresis, and iontophoresis
- **Continued graded exercises and incorporation of ADLs** *(Note: Provide same patient education as described on page 1)*

SAMPLE TREATMENT PLAN

- Powerweb, putty grips, wrist flexion/extension, gripper, digiflex, clothespins
- Conservative tx: Avoid repetitive gripping, focus on stretching

CARPAL TUNNEL SYNDROME

ANATOMY INVOLVED



8

CUBITAL TUNNEL SYNDROME

DESCRIPTION
Compression of the ulnar nerve as it passes the cubital tunnel. Symptoms included with cubital tunnel include ulnar-sided numbness and weakness, especially when the elbow is flexed. Hand pain presents along the medial aspect of the 4th digit through the 5th digit. Prolonged compression may result in clawing of the 4-5th digits.

NON-SURGICAL MANAGEMENT

1-6 WEEKS	THERAPY

- **Initial evaluation** is performed *(Note: It is common for pt to note that symptoms to increase during the night)*
- A pre-fabricated or custom elbow pad for light compression can be applied to the medial aspect of the elbow to protect from compression on hard surfaces during work/daily tasks
- Light arm use is encouraged for daily tasks
- **Exercises** to encourage movement include:
  - Ulnar nerve glides, light stretches (Heat can be applied prior)
- **Patient education:** Avoid repetitive elbow flexion and prolonged compression of the medial aspect of the elbow (Common pressure sources: Resting elbow on the edge of a desk, car window, etc.)

6+ WEEKS	THERAPY

- **Re-evaluation** is performed by the treating physician to determine symptom severity to be considered for cubital tunnel release
  - Symptoms lasting >9 months would indicate surgery
- **Symptom resolution** during this time would indicate a return to daily tasks with education provided on the continued use of the elbow pad for 1-2 months after discharge

CUBITAL TUNNEL SYNDROME

SURGICAL MANAGEMENT	CUBITAL TUNNEL RELEASE

DESCRIPTION

Decompression of the ulnar nerve in the cubital tunnel in the elbow via an open procedure of endoscopy.

5-14 DAYS	POSTOPERATIVE

5-10 Days

- Compression dressing is removed
- **Initial evaluation** occurs and emphasizes the following:
  - Sensory and motor function of the ulnar nerve
  - Dressing change: Sterile gauze, stockinette, and elbow pad
- **AROM exercises** can be initiated for the elbow and forearm
  - Nerve gliding exercises should be taught for the HEP

10-14 Days

- Sutures are removed *(Note: If the wound is not healed, advise pt to have sutures removed in 3-5 days to reduce delayed recovery)*
- **Scar massage** can be implemented after healing 3x per day
- **Edema control** is in the form of a stockinette
- HEP should be updated to include progressive endurance and strengthening exercises

3-6 WEEKS	POSTOPERATIVE

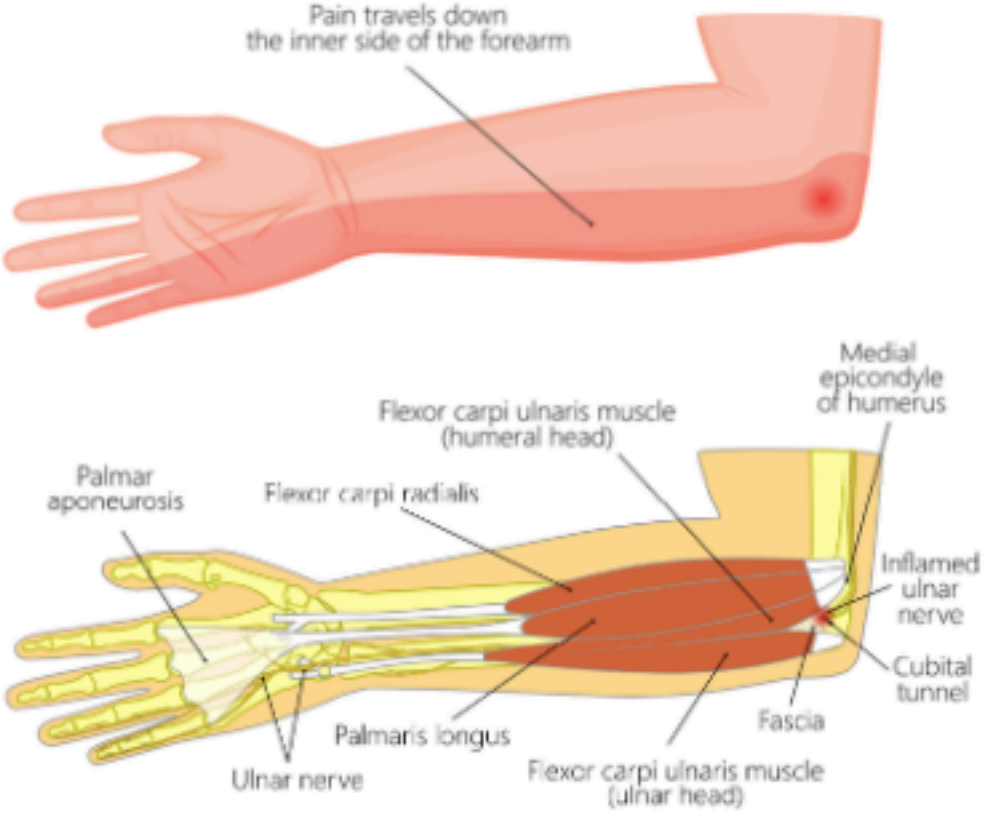
- **Initiate AAROM and PROM**
- **Strengthening exercises** can be initiated
- Continue progressive endurance and strengthening exercises with added weight *(Note: Avoid exercises that strengthen flexor carpi ulnaris and medial triceps as they surround the ulnar nerve [i.e weighted wrist flexion, upper body weight lifting])*

SAMPLE TREATMENT PLAN

- Powerweb, digiflex, putty (intrinsics), gripper, elbow flexion/extension, etc.

CUBITAL TUNNEL SYNDROME

ANATOMY INVOLVED



11

DE QUERVAIN'S TENOSYNOVITIS

DESCRIPTION
Inflammation occuring in the 1st dorsal compartment, housing the extensor pollicis brevis (EPB) and abductor pollicis longus (APL) tendons.
Testing: *Finkelstein's test* - Pt is instructed to hold their thumb flexed with their fingers while performing ulnar deviation. Pain at the base of the thumb indicates a positive result.

NON-SURGICAL MANAGEMENT

1-6 WEEKS	THERAPY

1-2 Weeks

- **Initial evaluation** occurs (Heat can be applied at this stage)
- Custom fabricated wrist and thumb orthosis is fitted (Thumb Spica)
  - Orthosis should be worn at all times when completing tasks
- If the pt has not received an injection, iontophoresis or phonophoresis may be indicated
- **Self-massage** along the radial forearm, wrist, and thumb should be performed 2-3x per day to promote circulation
- **Patient education:** Educate pt to limit repetitive gripping and pinching activities along with prolonged wrist flexion

3 Weeks

- Stretching of the wrist can be performed and includes:
  - PROM into ulnar deviation (gravity eliminated), thumb extension, and wrist extension
  - Gradually move on to wrist flexion, and flexion of the CMC and MP joints of the thumb

6-8 Weeks

- Orthosis can be reduced and discontinued after 3-4 weeks with symptoms decreasing
- Kinesiotape can be worn in place of orthosis for support

DE QUERVAIN'S TENOSYNOVITIS

SURGICAL MANAGEMENT	1ST DORSAL COMPARTMENT RELEASE

DESCRIPTION

After an incision is made over the thumb side of the wrist, the APL and EPB tendon sheaths are identified for inflammation. Tendon sheaths are then cut with tendons being pulled out for a full release.

3-5 DAYS	POSTOPERATIVE

- **Initial evaluation occurs**, dressing is removed
  - Light dressing can be applied at this stage (Stockinette to hand and forearm)
- Custom fabricated wrist and thumb orthosis (Thumb Spica) can be fitted if the pt presents with pain and/or their occupations require a high activity level (Discontinued within 3 weeks post-op)
- **AROM and PROM** can be initiated for the wrist, thumb, and digits 3-4x per day. Gradually add active and passive thumb flexion at the CMC and MP level (*Note: Include ulnar deviation to stretch the EPB*)

10-14 DAYS	POSTOPERATIVE

- Sutures are removed at this stage
- Scar massage with lotion can be initiated once the wound is healed
  - **Self-massage** along the radial forearm, wrist, and thumb should be performed 2-3x per day to promote circulation

2-3 WEEKS	POSTOPERATIVE

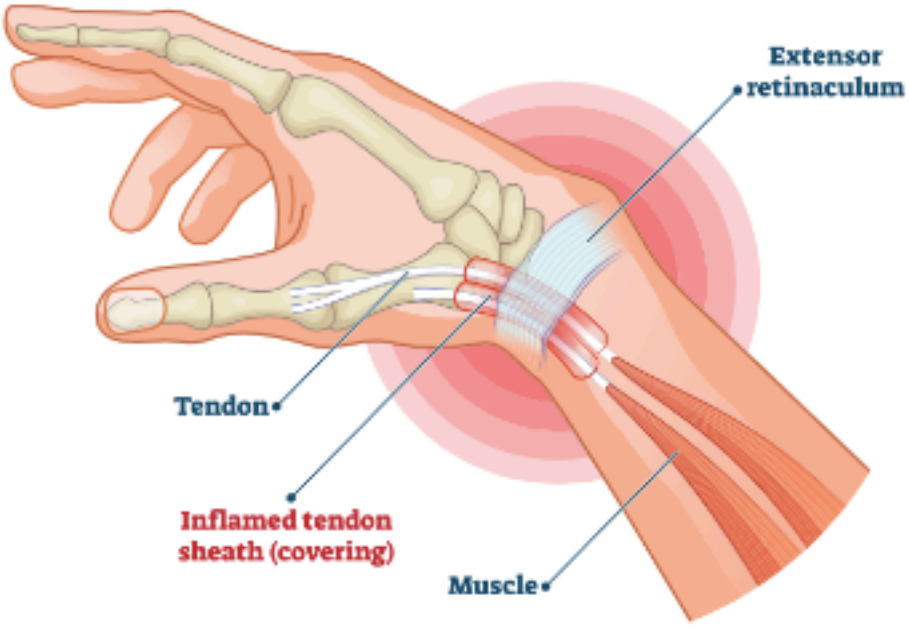
- Kinesiotape can be worn in place of orthosis for support
- Desensitization can be initiated and graded up according to pt tolerance
- **Patient education:** Educate pt to limit repetitive gripping and pinching activities along with prolonged wrist flexion during 6-8 weeks post-op

SAMPLE TREATMENT PLAN

- Powerweb, marbles, pegboard, fasteners, all wrist ROM, etc.

DE QUERVAIN'S TENOSYNOVITIS

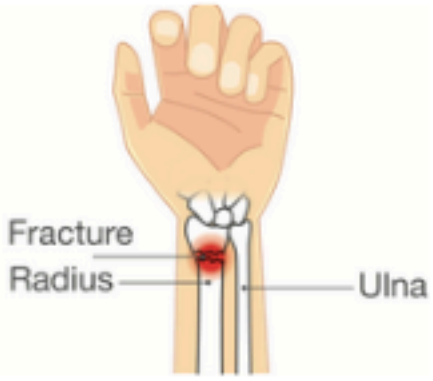
ANATOMY INVOLVED



14

DISTAL RADIUS FRACTURE

DESCRIPTION
One of the most common fractures, occuring from falling on an outstretched hand (FOOSH).
Colle's fx: Radial and dorsal displaced fragment of the distal radius.
Smith's fx: Volar displaced fragment of the distal radius.



NON-SURGICAL MANAGEMENT

10-14 DAYS	POST REDUCTION + CASTING

- **Casting:** *Therapy begins*. Length of cast may very: Surgeon may opt for dressing or immobilization orthosis.
- **Initial evaluation occurs** and includes the following procedures:
  - Edema control at digit level: Therapist can offer koban or fingersocks
  - AROM + AAROM are implemented for digits, elbow, and shoulder (4x per day, 15-20 repetitions)
  - Cast evaluation for tightness, pressure points, and movement restriction

2-3 WEEKS	POST REDUCTION + CASTING

- **Edema control** is prioritized.
- **PROM** of the digits can be implemented if edema and pain are not present.
- **Orthosis:** A custom-fabricated dynamic flexion orthosis can be implemented to increase MP and IP joint flexion (3x per day +/- 20 minutes.

5-6 WEEKS	POST REDUCTION

- **Fracture is healed** as determined by the physician. Cast is removed.
- **Wrist immobilization orthosis** is fitted and used at night. *Note: Orthosis is required to prevent re-fracture and offer protection.*
- **Edema contro**l following cast removal is monitored. Slight swelling is common after cast removal, stockinettes can be worn for reduction. In the case of persistent edema in the digits, offer an edema glove.
- **AROM** exercises can be implemented to the wrist and forearm and include:
  - Wrist flexion/extension and supination/pronation with the elbow at 90 degrees

7-12 WEEKS	POST REDUCTION

7 Weeks

- AROM exercises for wrist and forearm continue and may include:
  - Putty exercises, gripper, wrist maze, etc.
- Wrist orthosis can be removed for ADL tasks
- Heat and stretching are implemented

8 Weeks

- Wrist orthosis wear can be decreased to 4-6hrs per day, left on during the night
- If applicable, a dynamic wrist flexion/extension OR supination/pronation orthosis may be indicated

9 Weeks

- Wrist strengthening can begin with 1-3# weights
- Wrist orthosis should only be worn for ~3hrs per day

10 Weeks

- Wrist orthosis is only worn when lifting/carrying >10#

12 Weeks

- Pt can return to most if not all ADL and work-related tasks. Sports with grip/resistance should not be performed until 16 weeks.

DISTAL RADIUS FRACTURE

SURGICAL MANAGEMENT	OPEN REDUCTION INTERNAL FIXATION (ORIF)

DESCRIPTION

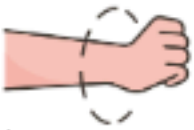
An incision is made over the fracture site. After careful examination of the muscles, and cuts or surfaces from the fractured bone are cleaned out. Bone fragments are then repositioned and held in place with screws, pins, and/or plates. Once repositioned, the incision is closed.

5-7 DAYS	POSTOPERATIVE

- Compressive dressing is removed
- Initial evaluation is performed
  - Light compressive dressing can be worn for edema control
- Custom-fabrcated wrist immobilization orthosis is made to be worn between therapy sessions
- AROM and AAROM can be initiated at shoulder, forearm, wrist, and digit levels 4-6x per day and include:
  - Wrist flexion/extension
  - Digit flexion/extension with blocking

7-14 DAYS	POSTOPERATIVE

- Pt may experience pain with supination and pronation. Pt may note pain at DRUJ or TFCC



10th Day +

- Sutures are removed
- Scar massage can be initiated once the wound is fully healed
- **Edema control**: Slight swelling is common after cast removal, stockinettes can be worn for reduction

  - If pt presents with significant/persistent edema, manage with edema massage, compression gloves, and/or dressing
  - Edema reduction is key to pain reduction and motion recovery

- **NMES** can be used after the pt has exhibited their own efforts

3-6 WEEKS	POSTOPERATIVE

3 Weeks

- **Reassessment** can occur, taking note of any shoulder pain or lack of ROM as there is potential for adhesive capsulitis

4 Weeks

- Strengthening exercises can begin with weight starting at 1-3#
- Physician may re-examine pt, indicating the use of a dynamic or static progressive orthosis
- Immobilization orthosis can be removed for ADLs and light activities

5-6 Weeks

- Immobilization orthosis can be reduced in overall time throughout the day when at home. Advise pt to wear splint in public and when carrying/lifting. Orthosis can be removed when asleep
- **Strengthening** exercises can be initiatedand include:
  - Putty, weighted ROM activities, gripper, etc.
- **Joint mobilization** can be initiated to increase ROM

6-12 WEEKS	POSTOPERATIVE

6-8 Weeks

- Strengthening exercises can be progressed based on pt's tolerance
- Supination and pronation strengthening should be performed with the elbow flexed to isolate pronator quadratus
- If pt cannot withstand weight, isometrics can be utilized

8-10 Weeks

- Strengthening and endurance training can be initiated and include:
  - Work simulating tasks (BTE), timed activities, etc.
- **Immobilization orthosis is discontinued**
- Pt can transition back to work tasks, >10# lifting is permitted using one hand

10-12 Weeks

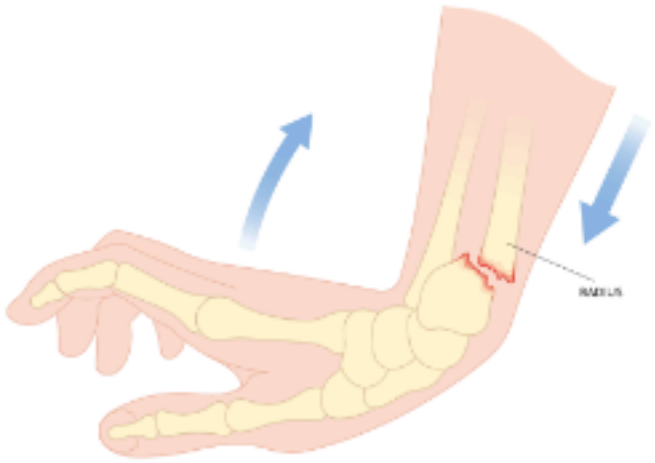
- Pt can return to all ADL and work tasks. Pt can return to counterforce sports (baseball, tennis, golf, etc.) in ~4 months dependent on physician reccomendation

SAMPLE TREATMENT PLAN

- Powerweb, wrist flexion/extension, supination/pronation, digiflex, putty gripper, etc.

DISTAL RADIUS FRACTURE

ANATOMY INVOLVED



COLLES FRACTURE

SMITH FRACTURE

DUPUYTREN'S DISEASE

DESCRIPTION
Categorized by an abnormal thickening of tissues causing a digit to contract over time. The patient will present with a hard lump (nodule) over the MP joint on the palmar side. Pt can present with one or more digits being affected.

SURGICAL MANAGEMENT	SUBTOTAL PALMAR FASCIECTOMY

3-5 DAYS	POSTOPERATIVE

- **Initial evaluation occurs**
  - Bulky dressing is removed and light non-adherent dressing is applied to the palmar surface. Compressive dressing is applied for drainage purposes
- Custom-fabricated orthosis can be fabricated for full digit extension with a neutral wrist
- **AROM and PROM** exercises can be initiated 4-6x per day with blocking exercises for the PIP and DIP joints

7-14 DAYS	POSTOPERATIVE

- **Sutures** are removed
- **Scar massage** with lotion can be initiated after the incision site is fully healed 3-4x per day
  - A scar pad can be worn nightly
- **Edema control:** An edema glove or elastic stockinette can be utilized for persistent edema
- **NMES** can be initiated to activate flexors for pts with active flexion difficulty

3-6 WEEKS	POSTOPERATIVE

- Pt may be experiencing continued stiffness and pain. Advise pt that stiffness decreases over the next 3 weeks
- Custom-fabricated dynamic digit extension orthosis (LMB) can be initiated

6-12 WEEKS	POSTOPERATIVE

- Custom-fabricated orthosis can be worn 3-4x per day for 1-hour intervals
  - Orthosis can be worn for 2 additional weeks if passive MP and/or PIP joint extension deficit is >15 degrees
- Discontinue daytime use of the custom-fabricated extension orthosis if the pt can maintain 10 degrees of digit extension. Advise pt to continue to wear during the night for up to 4 months post-surgery

Note: Pts present with "flare-ups" around weeks 3-6 with primary complaints of ROM difficulty, edema, and pain. The treating physician may recommend steriods.

SAMPLE TREATMENT PLAN

- Powerweb, marbles, chinese balls, digiflex, putty grips, intrinsics, tendon glides, etc.

XIAFLEX INJECTION

Recommended for patients who have a palpable cord in their palm along with a flexed digit. Following the injection, a light dressing is applied to the hand. Pt should not exercise hand until 3 days post injection.

0-3 DAYS	POST-INJECTION

- **Initial evaluation occurs**
  - Hand-based extension orthosis is fabricated to achieve max extension of the involved digits
  - Orthosis is recommended to be worn between sessions and during the night for up to 4 months
- AROM and AAROM exercises can be initiated. Pt can use hand for light activities

10-14 DAYS	POST-INJECTION

- Hand-based orthosis can be transitioned to nights only for pts who had the injection directly to the MP joint
  - If not, reduce wear for 3-4 times per day for 1 hour

2-3 WEEKS	POST-INJECTION

- For prolonged PIP joint contracture, a dynamic or static progressive PIP joint extension orthosis (LMB) can be initiated to wear 4-6 times a day for 20 minutes
  - Evaluate and adjust orthosis each session

3-8 WEEKS	POST-INJECTION

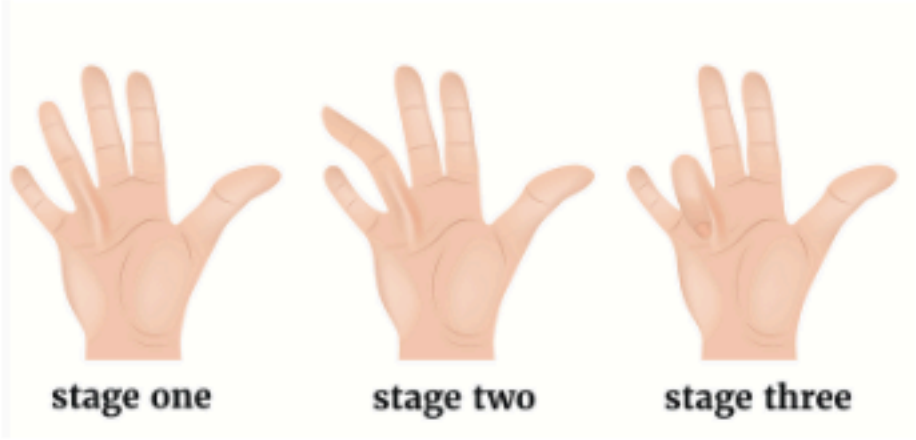
- Extension orthosis can be reduced to night wear, after 4-6 weeks, reduce to every other night

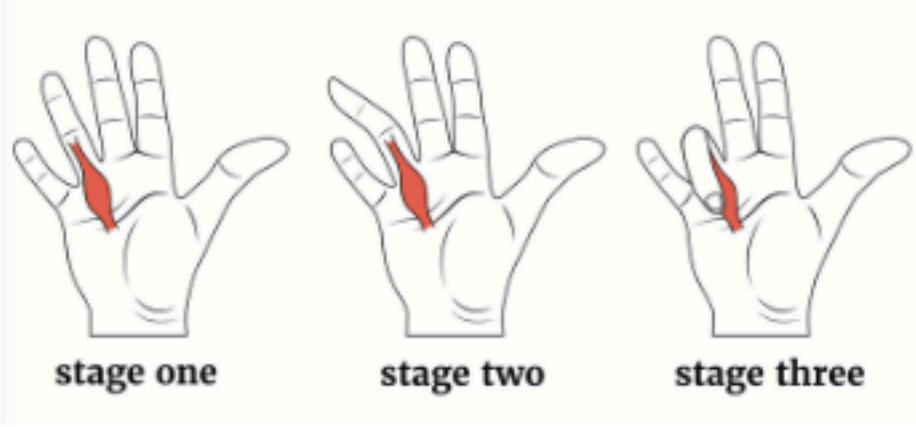
6+ Weeks

- Orthosis can be discontinued after re-evaluation, however, it is recommended to wear for up to 4 months post-injection

DUPUYTREN'S DISEASE

ANATOMY INVOLVED





23

LATERAL EPICONDYLITIS (TENNIS ELBOW)

DESCRIPTION

Categorized by microscopic tears within the extensor muscle mass, commonly the extensor carpi radialis brevis (ECRB) and secondarily the extensor digitorum communis (EDC) and extensor carpi radialis longus (ECRL). Pt will point to their lateral epicondyle as their pain source. Pain increases with wrist extension during elbow extension.

NON-SURGICAL MANAGEMENT

0-3 WEEKS	THERAPY

- **Initial evaluation occurs**
  - Emphasis should be placed on pain management and soft tissue healing
- **Manual massage** along the medial elbow can be performed clockwise, counter-clockwise, and the length of the extensor muscles
- **Heat** is recommended 2-3x per day for up to 15 minutes
- **Custom-fabricated** wrist immobilization orthosis can be indicated along with a pre-fabricated counterforce or "tennis elbow" brace (BandIT)
  - Both are worn during the day, wrist immobilization only at night
- **Patient education:** Review activities that elicit pain to avoid further symptoms and aggravation. Pts should lift with the palms up, and grip with the palm facing down. Progressive strengthening of the trunk and shoulder should be advised to offset the stress of the elbow.

3 Weeks

- If symptoms are persistent, advise pt to continue to wear immobilization orthosis for 2-3 weeks
- **Modalities** appropriate during this phase include moist heat, ultrasound, phonophoresis, and iontophoresis
- **Exercises** to restore flexibility can be initiated through active stretching of the elbow, forearm, and wrist

4-9 WEEKS	THERAPY

4-5 Weeks

- Passive stretching and strengthening exercises can be initiated
- Allow pt to perform exercises that do not elicit pain first then transition to minimal pain-inducing exercises

6-9 Weeks

- **Endurance-building and strengthening** exercises can be initiated for the elbow and wrist
  - Begin with a 1-3# weight for light resistance
  - Perform wrist exercises with the elbow at 90 degrees to emphasize the eccentric wrist movement
  - Elbow and shoulder strengthening can be performed
- The **counterforce brace** should be worn during all endurance and strengthening activities

9+ WEEKS	THERAPY

- Pt may return to sports if their subjective pain level reaches 1-2 for practice sessions only
  - Counterforce brace should be worn during practice sessions
- Evaluating the pt's movement patterns and grip of their equipment can offer insight into what may elicit their pain such as:
  - Tight grip on the handle of their equipment
  - Excessive wrist motion
  - Emphasizing arm movement over truck and LE to twist/turn when in contact with a counterforce
- Pt should have regained normal/functional ROM and flexibility
  - Continues to build endurance + strength through exercises

3+ Months

- Pt can fully participate in sports
- Advise pt to continue wearing counterforce brace for up to 6 months and stretch prior to actitivities

SAMPLE TREATMENT PLAN

- Powerweb, supination/pronation, wrist flexion/extension, gripper, etc.
- Kinesiotaping, Graston techniques, ultrasound

LATERAL EPICONDYLITIS (TENNIS ELBOW)

SURGICAL MANAGEMENT	LATERAL EPICONDYLE (PERCUTANEOUS) RELEASE

DESCRIPTION
A small incision is made along the lateral epicondyle. The cutaneous soft tissues surrounding the extensor tendon origin is separated from the epicondyle to decrease tension on the extensor tendon.

3-5 DAYS	POSTOPERATIVE

- **Initial evaluation occurs**
  - Light gauze dressing and elastic stockinette are applied in place of post-op dressing
  - AROM and PROM exercises are initiated for the elbow, forearm, and wrist 3-4x per day
    - Include exercises for the ECRL, ECRB, and EDC
  - A pre-fabricated elbow pad is fitted to protect the surgical site
- **Patient education**: Pt can perform light ADLs, avoid repetitive elbow and wrist movements, and avoid tight gripping and/or weighted activities

10-14 DAYS	POSTOPERATIVE

- Steri-strips should be removed during this time along with sutures
- Pt should continue wearing a stockinette with an elbow pad
- **Exercises** with weight can be initiated
- **Manual massage** can be performed along the elbow and dorsal forearm
  - Perform massage clockwise, counterclockwise, and along the length of the extensor muscles

3-6 WEEKS	POSTOPERATIVE

- Exercises can be gradually increased with pt reporting negotiable pain levels (Avoid repetitive motions)
  - Endurance exercises can be initiated
  - Weighted exercises should be performed near the body

8+ WEEKS	POSTOPERATIVE

- Eccentric exercises can be initiated for radial wrist extensors
  - Position the elbow in 90-degree flexion with the forearm pronated
  - Weight can be up to 3#

9-12 Weeks

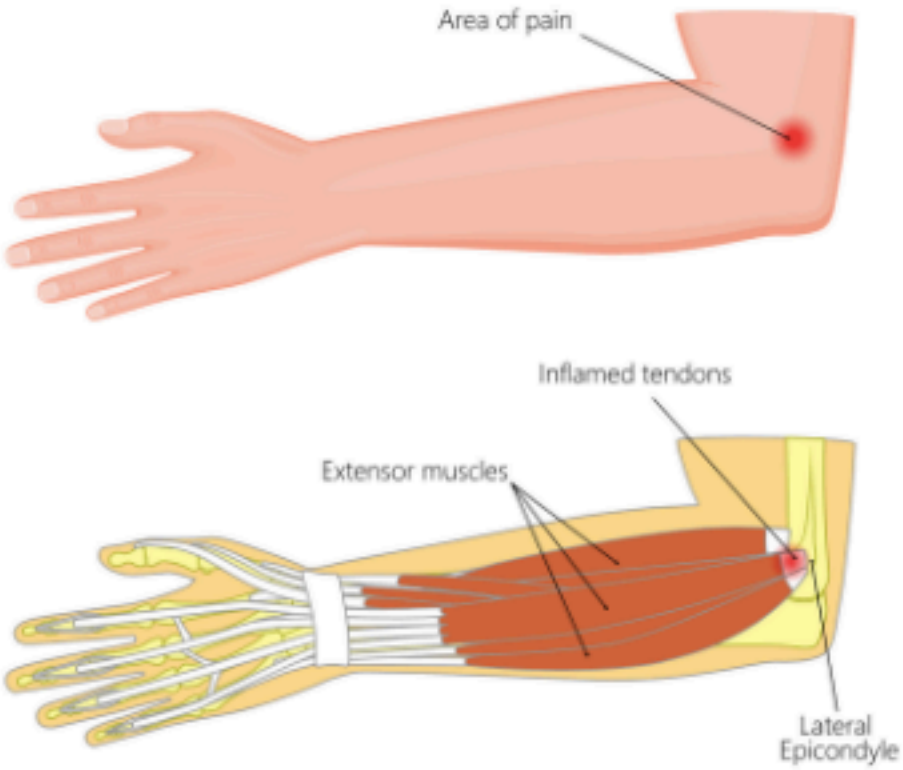
- Patient education: Advise pt to return to sports gradually
  - Evaluating the pt's movement patterns and grip of their equipment can offer insight into what may elicit their pain

3-4 Months +

- Advise pt to wear counterforce brace until their symptoms subside
  - Pt can wear the brace during activities that have previously caused pain for their comfort
- Avoid movement patterns that elicit pain

LATERAL EPICONDYLITIS (TENNIS ELBOW)

ANATOMY INVOLVED



MEDIAL EPICONDYLITIS (GOLFER'S ELBOW)

DESCRIPTION

Pain along the medial (inner) elbow that occurs when there is resisted forearm pronation or wrist flexion. Pain is caused by microscopic tears within the flexor carpi radialis (FCR) and pronator teres (PT). Pt will point to the medial epicondyle as their pain source.

NON-SURGICAL MANAGEMENT

0-3 WEEKS	THERAPY

- **Initial evaluation occurs** with emphasis on the following:
  - Measure wrist in a stress position: Elbow extended, forearm supinated, wrist in extension. The stress position will identify flexibility within the flexor and pronator muscles.
  - Grip strength should be tested in a stress position: Elbow extended, forearm supinated while holding the dynamometer.
- **Custom-fabricated orthosis** can be indicated for the following:
  - Wrist immobilization
  - Muenster orthosis for forearm/elbow support
- **Heat** is recommended 2-3x per day for up to 15 minutes
- **Manual massage** along the medial elbow can be performed clockwise, counter-clockwise, and the length of the flexor and pronator muscles
- *Note: Pt can perform basic ADLs and light activities that do not increase pain. Any lifting of weighted objects should be done with palms face down and slight elbow flexion to reduce muscle strain*

3 Weeks

- Stretching can be initiated actively after heat is applied for 10-15 minutes. A handout can be provided for a HEP and include:
  - Wrist extension with elbow in 90-degree flexion
  - Wrist extension with elbow flexed and forearm supinated
  - Wrist extension with elbow extended and forearm in neutral
  - Wrist extension with elbow extended and forearm supinated

6-9 WEEKS	THERAPY

6 Weeks

- Continue with heat before stretching exercises
- Eccentric loading exercises can be initiated (Weighted/resisted exercises)
  - Begin with 1-3# until tolerable pain is reached
- Gradually increase the weight with a goal to increase by 1# every week

8 Weeks

- For individuals in sports, they can resume practice sessions only and wear a counterforce brace
  - Evaluating the pt's movement patterns and grip of their equipment can offer insight into what may elicit their pain such as:
    - Tight grip on the handle of their equipment
    - Excessive wrist motion
    - Emphasizing arm movement over truck and LE to twist/turn when in contact with a counterforce

9+ WEEKS	THERAPY

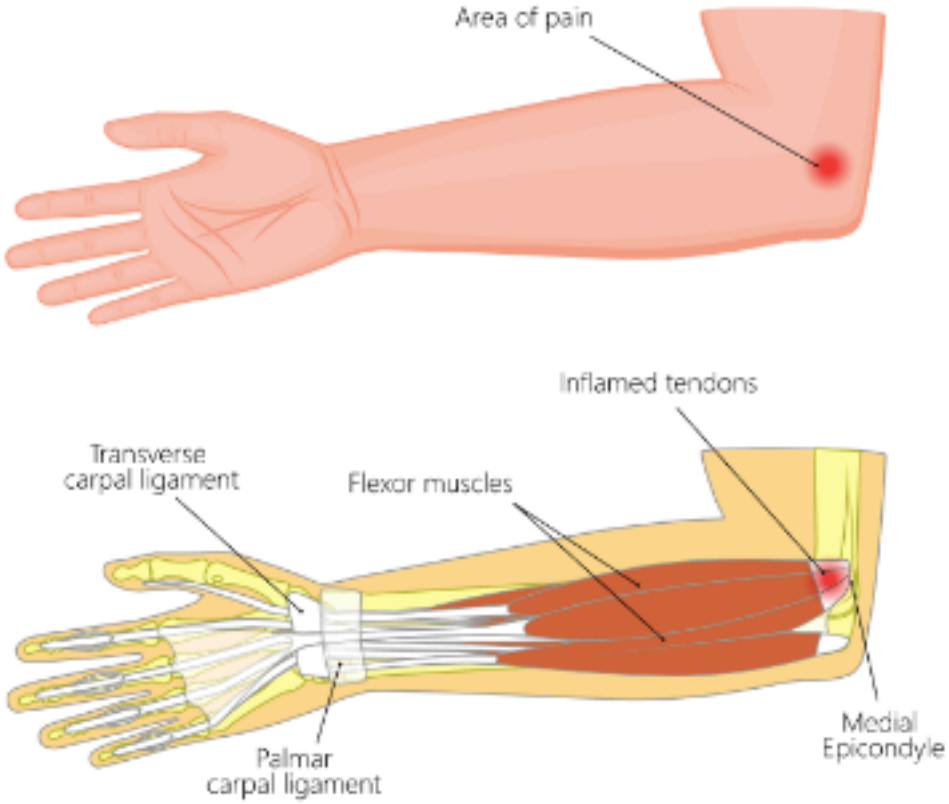
- Eccentic exercises can be performed with the elbow fully extended
  - Maximize strength in shoulder girdle to aide in force during sports
- Counterforce brace should be worn during sports and heavy lifting activities
  - Precautionary and preventative wear of the brace is encouraged for 6 months

SAMPLE TREATMENT PLAN

- Powerweb, supination/pronation, wrist flexion/extension, gripper, etc.
- Kinesiotaping, Graston techniques, ultrasound

MEDIAL EPICONDYLITIS (GOLFER'S ELBOW)

ANATOMY INVOLVED



RHEUMATOID ARTHRITIS

DESCRIPTION

A systematic autoimmune disorder with no known cause. Rheumatoid arthritis (RA) causes joint destruction, deformity, and reduction in joint mobility. Presented deformities are caused by immobilized joints, muscle shortening, and destruction of the cartilage between bones.

NON-SURGICAL MANAGEMENT | THERAPY

- Initial evaluation occurs and emphasizes the individual needs of the pt.
- Informing the pt that therapy will focus on preventing further progression of joint deformity, joint protection, maintaining strength, and providing education along the way.

ROM EXERCISES

- Gentle AROM and PROM exercises can be initiated at any stage to maintain or increase ROM and joint flexibility
- Flexor tendon gliding exercises can be provided as a HEP
- Intrinsic exercises should be initiated to aid in tightness
  - Putty and/or sponges are useful for these exercises

JOINT PROTECTION

- Patient education should include energy conservation, joint protection, and proper lifting mechanics. Pt should be adivised to minimize and pace their activity engagement. The following is a list of energy conservation techniques:
  - Carry large objects near your chest to load larger joints (Hips/knees)
  - Switch heavy objects with lighter opyions (i.e glass bowl to plastic)
  - Purchase and/or utilize baskets with wheels to hauls large items
  - Utilize built up handles for meal, grooming, and writing tasks
  - Keep spring-loaded scissors nearby to aide in opening packages
  - Replace doorknobs with lever style knobs

RHEUMATOID ARTHRITIS

- Utilize a pizza cutter to cut food instead of handling a knife
- Avoid difficult clothing with small buttons or purchase a button hook or zipper pull

Note: Assistive devices can be provided through a list of websites with the goal to teach the patient how to utilize them in their daily tasks

ORTHOTICS

- After assessment of ROM and limitations, an orthosis may be indicated
  - Static orthoses can reduce further deformity and protect painful joints
    - Pt will often prefer this as it offers support
  - When fabricating the orthosis, keep the following in mind:
    - Choose a light but sturdy material as the orthosis can be heavy
    - If the pt has been on steroid medication, be mindful of frail skin
    - Use a stockinette before placing hot material on the skin
    - Remember that although they are requesting an orthosis, you may need to make adjustments and/or discontinue its use due to discomfort

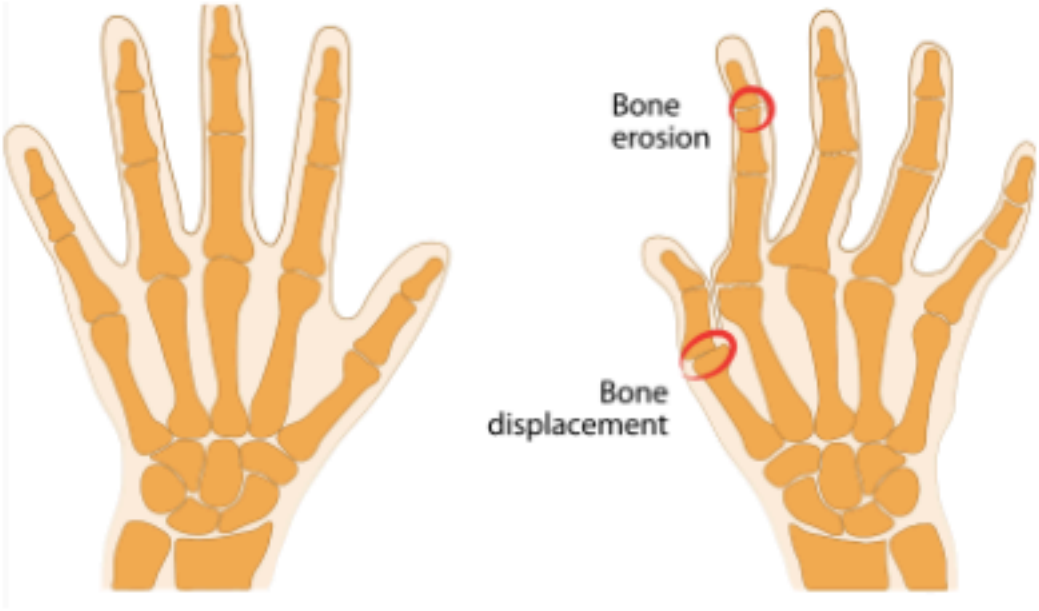
SAMPLE TREATMENT PLAN - STRENGTHENING

- **Resistive exercises** can be gradually introduced to maintain or increase strength and include the following:
  - Putty grips
  - Sponges in warm water
  - Gripper
  - Pegboard
  - Powerweb

- Encourage **aerobic exercises** such as walking and water aerobics to increase cardiovascular health

RHEUMATOID ARTHRITIS

ANATOMY INVOLVED



34

TRIGGER FINGER

DESCRIPTION
Repeated "snapping" or "catching" (triggering) of a digit with motion. Caused by a flexor tendon becoming "caught" within the A1 pulley due to thickening and inflammation of the tendon sheath. Palpation over the volar aspect of the metacarpal head at the A1 pulley will present with distinct hardness.

NON-SURGICAL MANAGEMENT

1-6 WEEKS	THERAPY

- **Initial evaluation occurs**
- **Orthosis:** A custom-fabricated MP joint blocking orthosis is fitted, placing the MP into full extension immobilization
  - *(Note: If this orthosis does not ease symptoms within 3 weeks, re-evaluate and offer DIP or PIP joint immobilization orthoses)*
  - Othosis can be worn during the day and night as tolerated/comfortable
- **Exercises** can be passive or active and include:
  - Tendon gliding (Hook-fist exercise) 2-3x per day
- **Patient education:** Self-massage to the affected MP joint and palm. Avoid activities that require repetitive gripping, grasping, or pinching.
  - Note: If an injection does not help symptoms, phonophoresis or iontophoresis could be indicated

1-6 WEEKS	THERAPY

- Re-evaluation may occur during this time by the treating physician
- **If symptoms resolve** during this time, advise pt to continue the use of orthosis and discontinue after 2-3 weeks
  - If pt has **no resolution in symptoms**, surgical intervention may be considered
- **Considerations:** Making a fist places the highest amount of pressure/strain on the A1 pulley. A2 and A3 pulley are uncommon to trigger.

TRIGGER FINGER

SURGICAL MANAGEMENT	TRIGGER FINGER RELEASE

DESCRIPTION

Along the volar surface of the metacarpal head of the affected digit, an incision is made to release the A1 pulley. Once released, the tendon can move freely.

10-14+ DAYS	POSTOPERATIVE

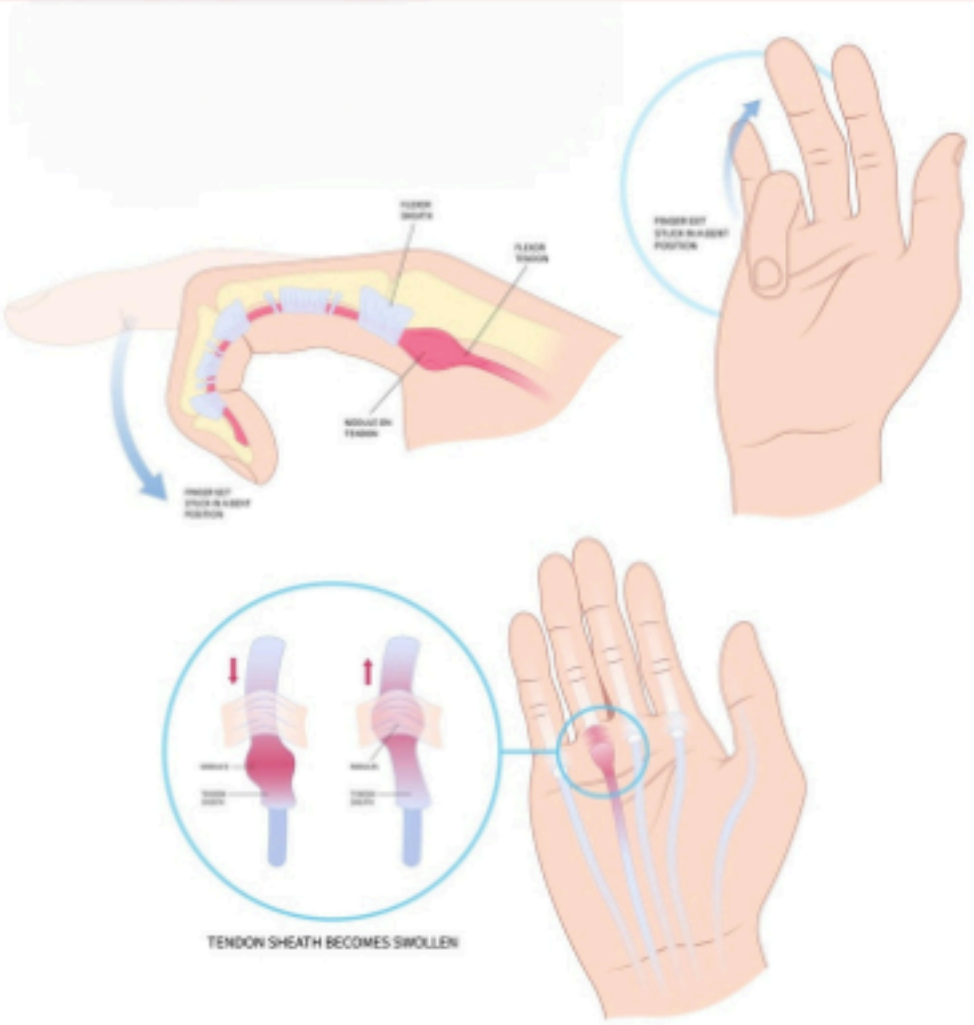
- Sutures are removed
  - An adhesive bandage is worn for 1-2 days until the wound is healed
- **Initial evaluation** occurs
  - Scar massage can be initiated once the wound is fully healed
- **Exercises** can be passive or active and include:
  - Tendon gliding (Hook-fist exercise) 2-3x per day
- Patient education: Educate pt to limit repetitive gripping and pinching activities during the first 4 weeks post-op. Padded gloves are recommended during light activities.
- A **HEP** can be provided at the initial evaluation in place of ongoing therapy unless the pt presents with notable pain and limited ROM.

SAMPLE TREATMENT PLAN

- Powerweb, marbles, digiflex, putty grips, digit extension, tendon glides, etc.

TRIGGER FINGER

ANATOMY INVOLVED



37

OSTEOARTHRITIS

DESCRIPTION

Also known as degenerative joint disease, osteoarthritis is within the **normal** aging process. Symptoms often include swelling and pain around the joint and changes in joint cartilage. Progression may result in bone-on-bone contact. Pt will often present with pain, crepitis, and limited/decreased ROM.

THERAPY	HEBERDEN'S NODES

Heberden's nodes form at the DIP joint level. Pt will present with swelling an mild flexion of the DIP joints.

- Custom-fabricated orthosis for DIP joint immobilization can be initiated
  - Purpose of orthosis: Edema control and pain management
- Providing pt with a digit gel sleeve can aid in pain during accidental "bumping" of nodes during daily activities

THERAPY	BOUCHARD'S NODES

Bouchard's nodes form at the PIP joint level. Pt will present with joint swelling, pain, and limited ROM.

- Custom-fabricated finger orthosis for the PIP joint can be initiated
  - Purpose of orthosis: Edema control and pain management
  - Pt can wear orthosis for daily activities that cause pain/discomfort
- Providing pt with a digit gel sleeve can aid in pain during accidental "bumping" of nodes during daily activities

SAMPLE TREATMENT PLAN

- Therapy will focus on movement patterns, activity modification, and use of adaptive equipment + training

OSTEOARTHRITIS

ANATOMY INVOLVED

39

OCCUPATION-BASED INTERVENTIONS

DEFINITIONS

Occupations: Activities that individuals engage in that pose importance in their daily routines.

Occupation-Based Interventions: Interventions where the occupational therapist uses engagement in occupations for performance-related goals.

HYGIENE + GROOMING

BRUSHING TEETH

PICKING UP TOOTHBRUSH

Shoulder: Forward flexion
Elbow: Forward extension
Forearm: Pronated
Wrist: Extended
Digits: Abducted
Thumb: Adducted

PICKING UP TOOTHPASTE

Shoulder: Forward flexion
Elbow: Fully extended
Forearm: Pronated
Wrist: Extended
Digits: Adducted and flexed around paste
Thumb: Adducted and flexed
Pinch: Lateral to squeeze out paste

BRUSHING TEETH

Shoulder: Flexion
Elbow: Flexed
Forearm: Supinated
Wrist: Extended + radial deviation
Digits: Adducted and flexed
Thumb: Adducted and flexed

MUSCLES INVOLVED

- Wrist and digit flexors and extensors, elbow flexors/extensors

GRADING ACTIVITY

- Up: Adding weight to handle or activity tool, increasing activity time/ standing endurance
- Down: Adding a built-up handle to the tool, having toothbrushes with paste already applied, using an electric toothbrush

BRUSHING HAIR

REACHING FOR HAIRBRUSH

Shoulder: Forward flexion
Elbow: Forward extension
Forearm: Pronated
Wrist: Extended
Digits: Abducted

PICKING UP HAIRBRUSH

Shoulder: Forward flexion
Elbow: Fully extended
Forearm: Pronated
Wrist: Extended
Digits: Adducted and flexed around brush
Thumb: Adducted and flexed

MOVING HEAD TO SHOULDER

Shoulder: Flexion
Elbow: 90 deg. flexion
Forearm: Supinated
Wrist: Extended + radial deviation
Digits: Adducted and flexed
Thumb: Adducted and flexed

MUSCLES INVOLVED

- Wrist and digit flexors and extensors, elbow flexors/extensors

GRADING ACTIVITY

- Up: Adding weight to handle or activity tool
- Down: Adding a built-up handle to the tool

MEAL PREPARATION

OPENING/CLOSING JARS

REACHING FOR JAR

Shoulder: Forward flexion
Elbow: Extended
Forearm: Pronated
Wrist: Extended
Digits: Abducted

TWISTING JAR OPEN

Shoulder: Forward flexion
Elbow: Slight flexion
Forearm: Pronated
Wrist: Neutral + radial deviation
Digits: Abducted and flexed around lid
Thumb: Adducted and flexed

TWISTING JAR CLOSED

Shoulder: Forward flexion
Elbow: Slight flexion
Forearm: Pronated
Wrist: Neutral + ulnar deviation
Digits: Abducted and flexed around lid
Thumb: Adducted and flexed

MUSCLES INVOLVED

- Wrist and digit flexors and extensors, elbow flexors/extensors

GRADING ACTIVITY

- Increasing or decreasing the size of the lid
- Adding small objects to be collected from the jar (with the use of digits, tweezers, tongs, etc.)

CUTTING FOOD

REACHING FOR KNIFE

Shoulder: Forward flexion
Elbow: Extended
Forearm: Pronated
Wrist: Extended
Digits: Abducted

CUTTING WITH KNIFE

Shoulder: Forward flexion
Elbow: Slight flexion
Forearm: Pronated
Wrist: Rocking motion (flexion + extension)
Digits: Adducted and flexed around the handle
Thumb: Adducted
Pinch: Lateral to stabilize knife handle

MUSCLES INVOLVED

- Wrist and digit flexors and extensors, elbow flexors/extensors

GRADING ACTIVITY

- Increasing or decreasing the size of the food item or knife handle
- Incorporating a built up handle, rocking knife, or wrist/hand strap

DRESSING

FASTENERS

BUTTONS

Elbow: Flexed then extends going down shirt
Forearm: Pronated
Wrist: Extended then flexed going down shirt
Digits: Adducted
Thumb: Opposition with index

ZIPPERS

Elbow: Extended then flexed zipping up
Forearm: Pronated
Wrist: Flexed then extended zipping up
Digits: Adducted
Thumb: Adducted and flexed

BUCKLES

Elbow: Flexed/extended depending on the location of the buckle
Forearm: Pronated
Wrist: Neutral depending on location
Digits: Adducted (Index assists thumb in buckle release)
Thumb: Adducted and flexed to push buckle release

MUSCLES INVOLVED

- Wrist and digit flexors and extensors, elbow flexors/extensors, intrinsic/extrinsic hand muscles

GRADING ACTIVITY

- Increasing or decreasing the size of the fastener
- Using different fabrics/textures with fasteners
- Placing a fastener board on the table or against the chest

FEEDING

UTENSIL MANIPULATION

REACHING FOR UTENSIL

Shoulder: Forward flexion
Elbow: Extended
Forearm: Pronated
Wrist: Extended
Digits: Abducted

HOLDING/MANIPULATING UTENSIL

Shoulder: Forward flexion
Elbow: Flexion (bringing utensil to mouth)
Forearm: Pronated
Wrist: Side-to-side motion (ulnar + radial deviation)
Digits: Adducted and flexed around the handle
Thumb: Adducted
Pinch: Lateral to stabilize utensil handle

MUSCLES INVOLVED

- Wrist and digit flexors and extensors, elbow flexors/extensors, intrinsic/extrinsic hand muscles, shoulder flexors/extensors

GRADING ACTIVITY

- Increasing or decreasing the size of the handle, solid or liquid food texture
- Incorporating a built up handle, wrist/hand strap, bowl/plate stabilizer

BATHING/SHOWERING

OBJECT MANIPULATION

HOLDING/MANIPULATING SPONGE

Shoulder: Flexion/extension
Elbow: Flexion/extension
Forearm: Pronated
Wrist: Flexion/extension/radial deviation/ulnar deviation
Digits: Adducted and flexed around the sponge/handle
Thumb: Abducted and flexed while holding sponge

MUSCLES INVOLVED

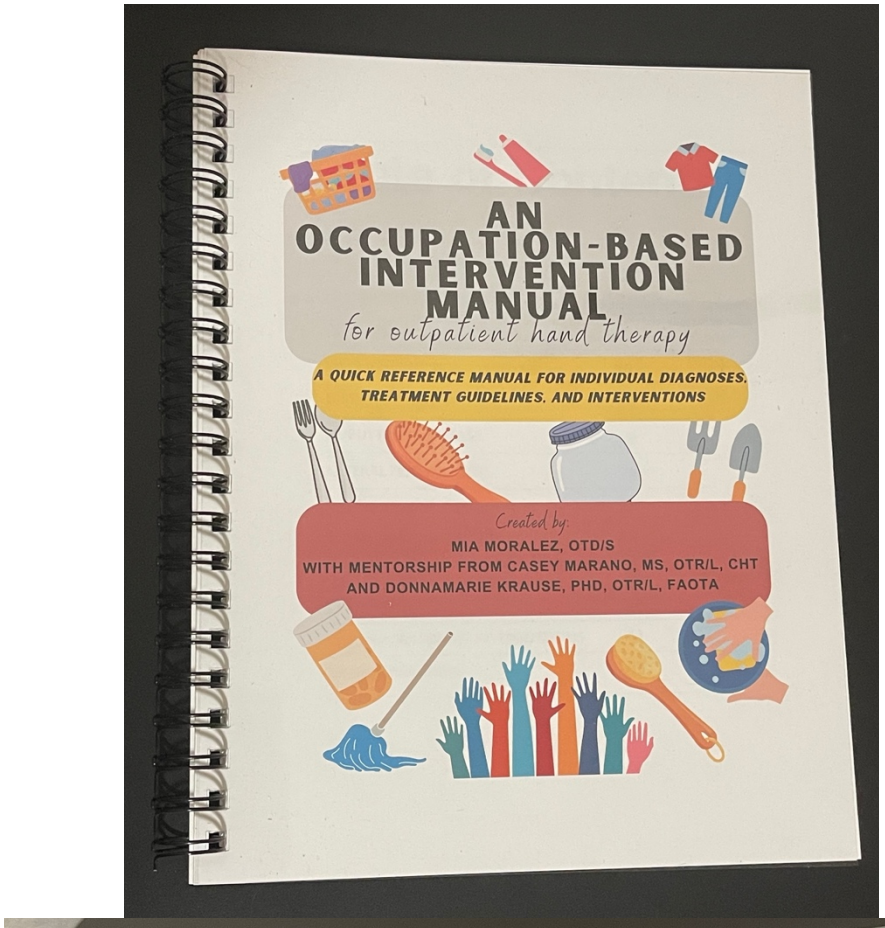
- Wrist and digit flexors and extensors, elbow flexors/extensors, intrinsic/extrinsic hand muscles, shoulder flexors/extensors

GRADING ACTIVITY

- Increasing/decreasing time spent in the shower, sitting vs. standing
- Incorporating a long-handled sponge, shower chair, grab bars, detachable hose

Appendix H

Completed OBI Manual



References

American Occupational Therapy Association. (2020). Occupational therapy practice framework: Domain and process (4th ed.). *American Journal of Occupational Therapy, 74*(Suppl. 2), 7412410010. https://doi.org/10.5014/ajot.2020.74S2001

Amini, D. (2008). Occupation-based hand therapy and the occupational therapy practice framework. *OT Practice, 13*(20), pp. 17–21. American Occupational Therapy Association, Inc.

Athletic Therapeutic Institute. (2016, January 26). *ATI launches in southern Nevada.* https://www.atipt.com/news/ati-launches-in-southern-nevada

Athletic Therapeutic Institute. (n.d). *Business solutions*. https://www.atipt.com/ business-solutions

Bailey, A. (2022). What is a certified hand therapist (CHT)?. Verywellhealth. https://www.verywellhealth.com/certified-hand-therapist-5322903

Byrne, D. (2022). A worked example of Braun and Clarke's approach to reflexive thematic analysis. *Quality & Quantity*, *56*(3), 1391–1412. https://doi.org/10.1007/s11135-021-01182-y

Case-Smith, J. (2003). Outcomes in hand rehabilitation using occupational therapy services. *American Journal of Occupational Therapy, 57*(5), 499–506. https://doi.org/10.5014/ajot.57.5.499

Che Daud, A. Z., Yau, M. K., Barnett, F., Judd, J., Jones, R. E., Muhammad, N., & Rashdeen F. (2016). Integration of occupation-based intervention in hand injury rehabilitation: A randomized controlled trial. *Journal of Hand Therapy, 29*(1), 30–40. https://doi.org/10.1016/j.jht.2015.09.004

Colaianni, D., & Provident, I. (2010). The benefits of and challenges to the use of occupation in hand therapy. *Occupational Therapy in Health Care*, *24*(2), 130–146. https://doi.org/10.3109/07380570903349378

Collis, J. M., Mayland, E. C., Wright-St Clair, V., & Signal, N. (2022). "The more I do, the more I can do": Perspectives on how performing daily activities and occupations influences recovery after surgical repair of a distal radius fracture. *Disability and Rehabilitation*, *44*(19), 5440–5449. https://doi.org/10.1080/09638288.2021.1936219

Creswell, J. W., & Plano Clark, V. L. (2017). *Designing and conducting mixed methods research* (3rd ed.). Sage.

Dapito, & Bondoc, S. (2018). A qualitative approach on the use of occupation based practice in hand therapy. *Journal of Hand Therapy, 31*(1), 149–150. https://doi.org/10.1016/j.jht.2017.11.015

Daud, C., Zamir, A., Yau, M. K., Barnett, F., Fiona, Judd, J., Jones, R. E., & Muhammad, N. (2016). Integration of occupation based intervention in hand injury rehabilitation: A Randomized Controlled Trial. *Journal of Hand Therapy*, *29*(1), 30–40. https://doi.org/10.1016/j.jht.2015.09.004

Farre, A., & Rapley, T. (2017). The new old (and old new) medical model: Four decades navigating the biomedical and psychosocial understandings of health and illness. *Healthcare*, *5*(4), 88. https://doi.org/10.3390/healthcare5040088

Fisher, A. G. (2013). Occupation-centered, occupation-based, occupation-focused: Same, same or different? *Scandinavian Journal of Occupational Therapy*, *20*(3), 162–173. https://doi.org/10.3109/11038128.2012.754492

Fiori, L., & Majeski, K. (2024). Perceptions Regarding Hand Therapy Content in Entry-level Occupational Therapy Programs. *Journal of Occupational Therapy Education, 8* (1). Retrieved from https://encompass.eku.edu/jote/vol8/iss1/8

Fitzpatrick, N., & Presnell, S. (2004). Can occupational therapists be hand therapists? *The British Journal of Occupational Therapy*, *67*(11), 508–510. https://doi.org/10.1177/030802260406701107

Guidetti, S., & Tham, K. (2002). Therapeutic strategies used by occupational therapists in self-care training: a qualitative study. *Occupational therapy international*, *9*(4), 257–276. https://doi.org/10.1002/oti.168

Guzelkucuk, U., Iltekin, D., Taskaynatan, M. A., & Dincer, K. (2007). Comparison of therapeutic activities with therapeutic exercises in the rehabilitation of young adult patients with hand injuries. *Journal of Hand Surgery, 32*A, 1429–1435. https://doi.org/10.1016/j.jhsa.2007. 08.008

Helm, T., & Dickerson, A. E. (1995). The effect of hand therapy on a patient with a Colles' fracture: A phenomenological study. *Occupational Therapy in Health Care*, *9*(4), 69–77. https://doi.org/10.1080/J003v09n04_06

Henrichon, & Toth-Cohen, S. E. (2022). Perspectives and influences on occupation-based hand therapy. *Canadian Journal of Occupational Therapy, 89*(3), 294–306. https://doi.org/10.1177/00084174221102720

Jack, J., & Estes, R. I. (2010). Documenting progress: Hand therapy treatment shift from biomechanical to occupational adaptation. *The American Journal of Occupational Therapy, 64*(1), 82–87. https://doi.org/10.5014/ajot.64.1.82

Melvin, J.L. (1985). Roles and functions of occupational therapy in hand rehabilitation. *American Journal Occupational Therapy, 39*(12), 795–798. https://doi.org/10.5014/ajot.39.12.795

Naughton, N., & Algar, L. (2022). Incorporation of occupational based intervention into joint protection education for individuals with thumb carpometacarpal osteoarthritis: A case series. *Journal of Hand Therapy*, *35*(3), 332–338. https://doi.org/10.1016/j.jht.2022.07.011

Nevada Board of Occupational Therapy. (2020, January). *Occupational therapy practice survey data.* https://www.nvot.org/www/download_resource.asp?id=793

OT Theory. (n.d.). *Biomechanical frame of reference.* https://ottheory.com/therapy-model/biomechanical-frame-reference

Phillips, E., Tounas, E., Waack, M., & Traetow, K. (2019). Evaluating current trends of occupation-based practice in the hand-therapy setting. *The American Journal of Occupational Therapy*, *73*(4), 7311505195–7311505195p1. https://doi.org/10.5014/ajot.2019.73S1-PO7035

Psillas, S., & Stav, W. (2020). Occupation-based practice (OBP) in OT. *The American Journal of Occupational Therapy*, *74*(S1), 7411505097–7411505097p1. https://doi.org/10.5014/ajot.2020.74S1-PO1312

Restall, G., Ripat, J., & Stern, M. (2003). A framework of strategies for client-centred practice. *Canadian journal of occupational therapy. Revue canadienne d'ergotherapie*, *70*(2), 103–112. https://doi.org/10.1177/000841740307000206

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*, 293–296. https://doi.org/10.1111/1440-1630.12268

Rostami, A. M., Hassani M. A., Akbarinia, A. R., & Samani, S. (2017). Occupation-based intervention versus rote exercise in modified constraint-induced movement therapy for patients with median and ulnar nerve injuries: A randomized controlled trial. *Clinical Rehabilitation, 31*(8), 1087–1097. https://doi.org/10.1177/0269215516672276

Short, N. (2018). Barriers and solutions to fieldwork education in hand therapy. *American Journal of Occupational Therapy*, *72*(4). https://doi.org/10.5014/ajot.2018.72S1-PO1017

Short, N., Bain, J., Barker, C., Dammeyer, K., Fahrney, E., Hale, K., & Nieman, C. (2020). Inclusion and perception of hand therapy content in occupational therapy programs: A mixed-method study. *Journal of Hand Therapy*, *33*(1), 112–118. https://doi.org/10.1016/j.jht.2018.07.005

Spalding, K., Gustafsson, L., & Di Tommaso, A. (2022). Exploring patient outcomes after participation in an inpatient occupation-based group: A longitudinal observational cohort study. *The American Journal of Occupational Therapy*, *76*(5). https://doi.org/10.5014/ajot.2022.049241

Stav, W. B., & Herman, A. (2022). An occupation-based clinic makeover: Perceptions and experiences of occupational therapists. *The Open Journal of Occupational Therapy*, *10*(1), 1–17. https://doi.org/10.15453/2168-6408.1831

Takata, S. C., Wade, E. T., & Roll, S. C. (2019). Hand therapy interventions, outcomes, and diagnoses evaluated over the last 10 years: A mapping review linking research to practice. *Journal of Hand Therapy*, *32*(1), 1–9. https://doi.org/10.1016/j.jht.2017.05.018

Taylor, R.R. (2017). *Kielhofner's research in occupational therapy: Methods of inquiry for enhancing practice.* F.A Davis Company.

Valdes, K., Naughton, N., Téllez, R. C., & Szekeres, M. (2023). The use of occupation-based interventions and assessments in hand therapy: A cross-sectional survey. *Journal of Hand Therapy, 36*(1), 214-220. https://doi.org/10.1016/j.jht.2021.10.008

Valdes, K., Szekeres, M., MacDermid, J., & Lunsford, D. (2019). Therapist perceptions of best practice as ordered by referral source: An exploratory survey. *Journal of hand therapy: Official journal of the American Society of Hand Therapists*, *32*(3), 361–367. https://doi.org/10.1016/j.jht.2017.12.001

Curriculum Vitae

MIA MORALEZ
miamoralez26@gmail.com

Education

University of Nevada, Las Vegas (UNLV) **May 2024**
Occupational Therapy Doctorate

California State University, Bakersfield **August 2020**
Bachelor of Science in Kinesiology – Allied Health

Clinical Experience

Fieldwork Student | DRIVEN Neurorecovery *Level IE* **October 2023**
- Assisted in intervention planning for clientele
- Collaborated and engaged with community
- Assisted in group intervention for community engagement

Fieldwork Student | SHARKKS Therapy *Level IIB* **May 2023 – August 2023**
- Evaluated and provided evidence-based treatment for adult and pediatric populations
- Provided patient and caregiver education
- Collaborated with intradisciplinary team for treatments and discharge planning

Fieldwork Student | Cornerstone Christian Academy *Level ID* **March 2023**
- Assisted in activity planning to address student concerns
- Gained assessment experience and developed results to be communicated to parents
- Facilitated social interactions among students

Fieldwork Student | Tick Talk Therapy *Level ID* **February 2023**
- Developed weekly social group activities for pediatric patients
- Graded interventions according to social participation and engagement

Fieldwork Student | Cornerstone Christian Academy *Level IC.* **November 2023**
- Assisted in activity planning to address student concerns
- Assisted in classroom activities and responsibilities
- Facilitated social interactions among students

Fieldwork Student | Athletic Therapeutic Institute (ATI) *Level IIA* **May 2022 – August 2022**
- Evaluated and provided evidence-based treatment for upper extremity conditions
- Collaborated with CI for treatments and discharge planning

Fieldwork Student | Rider Mobility *Level IB* **February 2022**
- Assisted in patient evaluation of wheelchair fittings
- Engaged with patients through consumer surveys
- Assisted in office responsibilities (faxing, medical records, etc.)

Fieldwork Student | Nevada Senior Services *Level IA* **November 2021 – December 2021**

- Assisted center staff in meal preparation and clean up responsibilities
- Engaged clients in group activities to promote social interactions

Leadership Experience

ASD Representative | Student Occupational Therapy Association **March 2023 – Present**

- Synthesizing student concerns to the representative assembly

Treasurer | UNLV Coalition of Occupational Therapy Advocates for Diversity **November 2022 - Present**

- Managing finances and reporting to executive board

Professional Associations

American Occupational Therapy Association, **Member since 2021**
Nevada Occupational Therapy Association, **Member since 2021**

Awards

OTD Capstone Support Scholarship	**2024**
OTD Capstone Education Support Scholarship	**2024**
OTD General Fieldwork Assistance Scholarship	**2023**
Out of Area Fieldwork Assistance Scholarship	**2023**