

Methodist University's OTD Program Presents the

Sixth Annual Occupational Therapy Class of 2026 Student Scholarship Research Symposium



DOCTOR OF OCCUPATIONAL THERAPY

April 12, 2025 | 9 a.m.

Dr. Frank P. Stout Physician Assistant Complex
Medical Lecture Hall & Streamed Online
5400 Ramsey St., Fayetteville, NC 28311

TABLE OF CONTENTS

Introduction to the OTD Symposium 3

OTD Scholarly Agenda 3

Faculty Capstone Mentors 3

Agenda 4-5

Abstracts and Presenters 6-15

Introduction to the OTD Symposium

These student presentations represent a component of the OTD curriculum that meets the educational standards for scholarship and evidence-based practice. The Clinical and Community Capstone Scholarly Project is part one of the capstone curriculum and begins in the summer term of the first year of the program.

This project is mentored by a faculty member and is aligned with the mentor’s scholarly agenda. Completion of the Capstone Scholarly Project prepares the student and serves as the impetus for the culminating Capstone Experience. It generally begins with a literature review, PICO question generation, traditional qualitative or quantitative methods of inquiry, and culminates in the final didactic semester of the program with peer-reviewed dissemination efforts.

OTD Scholarly Agenda

Our departmental faculty scholarship agenda seeks to build quality evidence that spans the depth and breadth of the occupational therapy profession. The OTD program faculty, in collaboration with our students, strives to advance the profession through scholarly engagement, enrichment, and empowerment. Collectively, our scholarly work will create a well-rounded, creative, and collaborative environment that uses a multidisciplinary approach to incorporate the basic and applied sciences, including rehabilitation science, health and wellness, social sciences, and engineering. Pragmatically, our research is grounded in theory, molded by the grant-writing process, and executed in clinical and community-engaged settings. Simultaneously, our faculty scholarship agenda coincides with the evidence-based practice and research course series, allowing us to build a strong peer-mentor relationship with our OTD students and foster student-led capstone scholarship. The ultimate goals of our work are to create evidence-driven occupational therapists and scientists who will contribute to advancing human health and wellness through participation in everyday life activities.

Faculty Capstone Mentors

- Matthew Foreman, PhD
- Chanelise Garcia, OTR/L
- Meredith Gronski, OTD, OTR/L, CLA, FAOTA
- Katherine Jones, Ed.D., OTR/L, CLT-LANA, CWT
- Nikki Kardouni, OTD, OTR/L
- Annabeth Knight, OTD, OTR/L, ATP
- Sheri Michel, OTD, OTR/L
- Charlotte Navarro, OTD, OTR/L



9-9:15 a.m.	Opening Remarks		Katherine Jones
9:15-9:30 a.m.	How does nutrition affect occupational performance in Parkinson's disease: A scoping review	India Harper, Morgan Quinn, Hayley Smith Mentor: Michel	
9:30-9:45 a.m.	Exploring the need for occupational therapy in Laos, Asia	Diamond Franklin, Madison Vang Mentor: Michel	
9:45-10 a.m.	Shaping learning spaces: Teacher's perspectives on sensory considerations in classroom design	Savanna Myers Mentor: Jones	
10-10:15 a.m.	Retained primitive reflexes and fine motor skills in relation to scholastic performance in school-aged children	Logan Cameron, Hannah Wheelless Mentor: Knight, Garcia, Jones	
10:15-10:45	Q&A Break		
10:45-11 a.m.	A student life gap: Exploring the occupational needs of on-campus college students with food allergies	Leah Strickland Mentor: Gronski	
11-11:15 a.m.	Occupational therapy for improved health and role adaptation in mothers within 6-8 weeks postpartum	Courtney Jones Mentor: Knight	
11:15-11:30 a.m.	Adaptive clothing: Barriers and supports identified by OTPs, patients and caregivers across lifespan and diagnosis	Hannah Harwick Mentor: Knight	
11:30-11:45 a.m.	The role of occupational therapy in pelvic health management following hysterectomy	Charity Faragoi Mentor: Knight	
11:45 a.m. -Noon	Q&A Break		
Noon-1p.m.	Lunch		

1-1:15 p.m.	Slipping through the cracks: Identifying challenges in transitional foster care services for youth aging out of foster care	Josephine Samuelian, Elena Schmidt Mentor: Navarro	
1:15-1:30 p.m.	Interprofessional education and its impact on clinical performance in acute care settings: Communication, transfer of skills, and advocacy	Latanasia Dockery, Elizabeth Mazingo Mentor: Navarro	
1:30-1:45 p.m.	Exploring the impact of childhood hospitalization: A survey on patient recollections, environmental influences, and psychosocial factors	Briana Oakley Mentor: Navarro	
1:45-2 p.m.	A pre-post survey of concussion knowledge and attitudes following an educational protocol for parents of youth ice hockey players	Laura Rendler Mentor: Foreman	
2-2:15 p.m.	The impact of equine-assisted services on daily function in the pediatric population	Isabella Bradley, Ina Womack Mentor: Foreman	
2:15-2:45 p.m.	Q&A Break		
2:45-3 p.m.	Virtual reality-based training for fine motor hand movements in adults with Parkinson's disease: A case series	Rebecca Rosenberg, Julianna Roska, Hunter Vaughan Mentor: Foreman, Kadouni	
3-3:15 p.m.	Enhancing fine motor skills in Parkinson's disease: A grant proposal for virtual reality-based training in hand rehabilitation	Kamryn Bell, Khaile Jones Mentor: Foreman, Kardouni	
3:15-3:30 p.m.	The feasibility of 3D printing to modify the orthoses fabrication process as seen by occupational therapists and other rehabilitation professionals	Deanna Glus, Kayla McIntosh Mentor: Foreman	
3:30-3:45 p.m.	Future directions in OT: Gathering student perspectives on the role of 3D printing in orthosis development	Dawson Blanchard Mentor: Foreman	
3:45-4 p.m.	Q&A Break		
4-4:15 p.m.	Closing Remarks		Foreman



The Sixth Annual Occupational Therapy Symposium Presentations

April 12 | 9 a.m. - 4 p.m.



9:15 - 9:30 a.m.

How does nutrition affect occupational performance in Parkinson's disease: A scoping review

Authors: India Harper, Hayley Smith, Morgan Quinn
Mentor: Sheri Michel, OTD, OTR/L

BACKGROUND: This article aims to explore the gaps in nutritional recommendations and occupational performance to identify Occupational Therapy's role in helping patients manage Parkinson's Disease (PD) to increase occupational performance.

METHODS: This study is a scoping review focusing on the research established and identifying the gaps. This study focuses on the adult population of PD, examining the relationships between nutrition and occupational performance. Articles must be relevant to PD, within 20 years, and require qualitative and quantitative data or systematic reviews. Exclusion criteria include any studies unrelated to nutrition, occupational performance, or PD. Non-peer reviewed articles/entire articles not accessible are also excluded from this systematic review. The

first outcome of this study includes identifying and mapping existing evidence on the relationship between nutrition and occupational performance in PD. The second outcome is to explore different nutritional interventions and their impact on PD patients' functional abilities and quality of life.

RESULTS: The sample size of this study is 20 peer-reviewed articles. The main finding of this study is that there is a correlation between nutrition and occupational performance.

DISCUSSION: The main takeaway from this study is identifying the gap between the impact of nutrition and occupational performance in individuals with PD. Research suggests that nutritional interventions can enhance motor control, cognitive function, and social participation. The limitations are that there is no current research linking increased ADL performance to dietary changes. In the future, studies should be conducted to determine if there indeed is a link between nutrition and ADL performance.

9:30 - 9:45 a.m.

Exploring the need for occupational therapy in Laos, Asia

Authors: Diamond Franklin & Madison Vang
Mentor: Sheri Michel, OTD, OTR/L

BACKGROUND: There are little to no occupational therapy (OT) services available in Laos, Southeast Asia, due to no legal definition of disability, cultural perception of rehabilitation services, and barriers to establishment. This study aims to demonstrate the need for OT services in Laos through published research and other resources.

METHODS: A scoping review was conducted based on scientific and grey literature. Scholarly databases were searched for documents relating to studies that described or examined OT in Asia, social determinants of health in Laos, healthcare in Laos, government articles

on Laos, and OT in underdeveloped countries. Keywords were Lao and healthcare, healthcare in Southeast Asia, healthcare in Laos, rehabilitation in Laos, and social determinants of health in Laos. There were no restrictions on the place of origin of papers. Studies were excluded if they were systematic reviews, meta-analyses, and published before the year 2000.

RESULTS: The results of this scoping review are currently pending.

DISCUSSION: OT would be beneficial in providing healthcare services and promoting disability rights for people in Laos. This study provides a more profound understanding of Laos healthcare system, culture, and social determinants of health and the positive impact OT can have on the country. Research gaps were determined by the limited research articles available throughout the various database platforms.



9:45 - 10 a.m.

Shaping learning spaces: Teachers’ perspectives on sensory considerations in classroom design

Author: Savanna Myers
Mentor: Katherine Jones, Ed.D., OTR/L, CLT-LANA, CWT

BACKGROUND: The classroom environment plays a crucial role in a child’s academic success and engagement with materials. It is pivotal that educators understand how the learning environment they are providing to students impacts their learning. The purpose of this research is to better understand educators’ experiences and understanding of how the classroom environment impacts students’ sensory processing and their ability to learn.

METHODS: This study utilized a qualitative design, using a survey and semi-structured interviews. Participants were recruited through social media and word of mouth. Eligibility criteria required participants to have obtained or be in the process of completing a teaching license in North Carolina and were currently teaching full-time in grades 1-5.

Participants completed a survey containing demographic questions and a questionnaire, while a subset of participants also took part in a virtual interview. Survey responses were analyzed using descriptive statistics, and interview transcripts were analyzed through thematic coding to identify recurring patterns and trends in responses.

RESULTS: Three themes were developed from the interview data. The first theme was misunderstanding sensory and behavior control. The second theme was the impact of teacher preference and experience on classroom design. The third theme was collaboration between teachers, health professionals, and administration when creating a sensory-supportive classroom.

DISCUSSION: The findings of this study emphasize the lack of understanding of educators on the impact of the environment on students’ learning. Participants’ interview responses display the need for increased education and support to promote sensory-inclusive classrooms that encourage participation and create a positive learning environment for students.

10 - 10:15 a.m.

Retained primitive reflexes and fine motor skills in relation to scholastic performance in school-aged children

Authors: Logan Cameron & Hannah Wheelless
Mentors: Annabeth Knight, OTD, OTR/L, ATP, Katherine Jones, EdD, OTR/L, CLT-LANA, Chanelise Garcia, OTR/L

BACKGROUND: Motor movements facilitate the engagement of learning and social participation needed for academic engagement. Retained primitive reflexes can impact motor control, affecting a child’s ability to learn and engage in school activities. (Beery et al., 2010; Pagani & Messier, 2012; Skinner & Piek, 2001). This study aims to examine the potential correlation between primitive reflexes and academic achievement by testing for primitive reflexes and administering the Bruininks-Oseretsky Test of Motor Proficiency, Second Edition: Brief (BOT-2 Brief; Bruininks & Bruininks, 2010).

METHODS: A correlational study was conducted to explore the relationship between primitive reflexes, motor skills, and scholastic

performance. Participants were ages 5 to 11 years old and able to follow directions, complete tabletop tasks for 10 minutes, sustain a quadruped position, and stand independently, with English as their primary language. If parents reported visual, physical, or cognitive impairment that affected the participants’ ability to complete an assessment, participants were excluded. Outcomes were collected using a parent survey, the BOT-2 Brief, and primitive reflex testing. Once the data was collected, statistical software was used, and data was analyzed using descriptive and inferential statistics to report trends and results.

RESULTS: Results for this study are pending.

DISCUSSION: Primitive reflex testing for infants and children could show early signs of neurological disorders and functional challenges (Jaiswal & Morankar, 2017). The development of an assessment that is easy to administer can equip occupational therapy practitioners to repeat the assessment in order to measure progress or regressions (Dubowitz et al., 2005). Future work in this area may include more research about the impact of retained primitive reflexes on childhood occupations, such as education.



10:45 - 11 a.m.

A student life gap: Exploring the occupational needs of on-campus college students with food allergies

Author: Leah Strickland
Mentor: Meredith Gronski, OTD, OTR/L, CLA, FAOTA

BACKGROUND: Students with food allergies constitute 11% of the college-aged population (Wu & Wang, 2023). A food allergy diagnosis usually begins in primary care where individuals oftentimes receive a lack of holistic support necessary for optimal occupational performance. The purpose of this study was to assess the needs of on-campus college students with food allergies to determine which areas of occupation are most impacted.

METHODS: This was a mixed methods pilot design with anonymous survey responses. Participants included in this study were current full-time undergraduate or graduate students, registered for at least 12 credit hours at a college or university in the United States, at least 18 years of age, and have a clinically diagnosed food allergy. Utilizing QuestionPro, all participants completed a survey. Recruitment strategies included social media platforms, emails, flyer postings, and word-of-mouth. Data from the survey were analyzed to evaluate

outcomes and determine common themes which ultimately described the lived experiences of on-campus students with food allergies.

RESULTS: Fourteen students completed the survey with the majority having allergies to nuts, wheat/gluten, and dairy. Participants described quantitative and qualitative examples of significant impacts to occupations and performance patterns related to quality of life, campus engagement, and access to health support. Analysis indicated that the majority (53.85%) of participants could benefit from more support and resources during their college experience.

DISCUSSION: This study highlights a gap between the needs of college students with food allergies and on-campus supports available. Campus resources are necessary for optimizing meaningful participation in college activities.

CONCLUSION: Occupational therapy’s holistic lens offers an opportunity to develop an on-campus support team offering skilled services which address physical, emotional, and social needs to better support student quality of life and eliminate current systemic barriers to participation on college campuses.



11 - 11:15 a.m.

Occupational therapy for improved health and role adaptation in mothers within 6-8 weeks postpartum

Author: Courtney Jones
Mentor: Annabeth Knight, OTD, OTR/L, ATP

BACKGROUND: The U.S. has the highest rate of maternal deaths of any high-income nation, 65% of which occur postpartum (Gunja et al., 2024). The care mothers receive during this period impacts how well they can adapt to their new role. The purpose of this study is to identify the areas of need for first-time mothers and the gaps in postpartum care. Results are expected to show outlying needs that mothers have, most significantly in areas that can be effectively addressed by OTPs.

METHODS: This is a cross-sectional study where quantitative survey responses were gathered via QuestionPro. Participants were recruited by convenience sampling. Eligible participants were women aged 18-50 who currently resided in North Carolina. Mothers had to be within

one year of delivering of their first child. They were excluded if they had fatally lost an infant, been diagnosed with a mental health issue, or had a baby with significant health challenges. Outcomes measured were the most useful resources to mothers and their levels of confidence in various aspects of motherhood.

RESULTS: A total of 54 respondents began the survey, 52 of whom completed it and 14 participants were eligible and answered all questions.

DISCUSSION: OT in maternal health is an emerging practice area, highlighting the need for applicable research with this population. Results suggest the areas in which mothers lack the most confidence are within OT scope of practice and can adequately be addressed to support mothers in their transition postpartum. A larger-scale study should be conducted for the development of evidence-based practice methods.

11:15 - 11:30 a.m.

Adaptive clothing: Barriers and supports identified by OTPs, patients, and caregivers across lifespan and diagnosis

Author: Hannah Harwick
Mentor: Annabeth Knight, OTD, OTR/L, ATP

BACKGROUND: Adaptive clothing can improve independence and quality of life for those with sensory problems or physical limitations. However, its integration into occupational therapy treatment plans remains underexplored. The purpose of this study is to evaluate the obstacles and resources that OTPs encounter while implementing adaptive clothing, determine which patient populations are most in need, and compare the perspectives of patients, caregivers, and OTPs.

METHODS: In this cross-sectional study, patients who have used or benefited from adapted clothing, occupational therapy professionals, and caregivers were given surveys. Participants included OT practitioners (licensed in the U.S.), patients (with any diagnosis), and

caregivers over 18. The exclusion criteria included OT students and any professional who is not an OTP (MDs, DOs, PAs, RTs and PTs).

RESULTS: Key findings revealed that OT practitioners identified time and resource constraints as major barriers to integrating adaptive clothing into treatment. Despite issues with accessibility and cost, caregivers and patients indicated a high level of awareness and happiness with adaptive clothes. Patients with SCIs and strokes were found to have the greatest need for adaptive clothing to improve ADL participation.

DISCUSSION: This study highlights the need for increased awareness and improved access to adaptive clothing in OT practice. The findings underscore barriers like time constraints and cost, which hinder effective implementation. Offering diverse perspectives on how adaptive clothing can be better integrated to promote patient independence makes this study notable. Limitations include reliance on self-reported data, and future research should explore interventions to enhance access to adaptive clothing in OT practice.



11:30 - 11:45 a.m.

The role of occupational therapy in pelvic health management following hysterectomy

Author: Charity Faragoi
Mentor: Annabeth Knight, OTD, OTR/L, ATP

BACKGROUND: The purpose of this study is to identify the necessity for occupational therapy (OT) with the goal of improving pelvic health dysfunction post-hysterectomy. Our goal is to contribute evidence-based research to the existing body of knowledge and disseminate findings.

METHODS: A mixed-method survey with an optional semi-structured interview component was conducted anonymously via QuestionPro. Participants included occupational therapy practitioners (OTPs) licensed by their respective states and have been practicing in pelvic health for at least one year. Convenience sampling was used to collect

data, knowledge, and experiences regarding the impact of OT post-hysterectomy. Participants completed a self-made Likert scale survey. The predicted outcome is to show the importance of post-hysterectomy care by OTPs. Qualitative data will be analyzed through thematic analysis and quantitative data will be analyzed through descriptive statistics.

RESULTS: Results of this study are pending.

DISCUSSION: This study was completed to show the importance of OTP involvement in post-hysterectomy care. The results of this survey can inform future OTPs, influence academic standards, and advocacy efforts for women's health. Future work of this study aims to identify the necessity for occupational therapy evaluations and establish protocols focused on pelvic health to improve pelvic floor dysfunction post-hysterectomy.

1 - 1:15 p.m.

Slipping through the cracks: Identifying challenges in transitional foster care services for youth aging out of foster care

Authors: Josephine Samuelian & Elena Schmidt
Mentor: Charlotte E. Navarro, OTD, OTR/L

BACKGROUND: Nearly 20,000 youth aged 18 to 21 exit the United States foster care system each year due to aging out. Given the turbulent nature of a foster child's upbringing, foster care organizations are encouraged to begin transitional programming with foster youth around age 13 so that they are prepared to live independently. The current body of research suggests gaps in transitional programming available to foster youths, which limit program effectiveness. However, limited research is available that applies the occupational therapy lens to identify perceived gaps by foster care professionals.

METHODS: In this descriptive study, a survey was used to gather data about the experience of foster care professionals regarding knowledge

and opinions about different components of the North Carolina transitional program for foster youth.

RESULTS: Survey respondents reported current foster care transitional services to be either somewhat effective or moderately effective at preparing foster youth for adulthood, with no respondents reporting services to be either very effective or extremely effective. While respondents reported overall satisfaction with current transitional processes, suggestions from respondents to make transitional services for foster care youth more successful included incentives for program participation and increasing funding and resources available.

DISCUSSION: The results of this study lay the groundwork for utilizing occupational therapy's unique skillset within foster care transitional programs to encourage successful outcomes. Future research could lead to the justification of occupational therapy services into transitional programming and enhance the success of foster youth.



1:15 - 1:30 p.m.

Interprofessional education and its impact on clinical performance in acute care settings: Communication, transfer of skills, and advocacy**Authors:** Elizabeth Mozingo and Latanasia Dockery**Mentor:** Charlotte E. Navarro, OTD, OTR/L

BACKGROUND: Interprofessional education (IPE) is when learners from two or more professions learn and collaborate on improving patients' health outcomes. The purpose of this study is to evaluate IPE experiences and their impact on learner's clinical performance in acute care settings of students and new graduates' communication skills, transfer of skills in real-life situations, and ability to advocate for their patients and their profession.

METHODS: This study used a descriptive survey-based design. Participants were eligible if they were 18 years or older, new graduate and current acute care medical professionals, fluent in the English language, and who practice, currently attend or graduated from US

programs. Recruitment was conducted using convenience and snowball sampling. Participants completed a survey adapted from pre-existing assessments. The predicted outcome is to show IPE experiences positively impact a learner's clinical experiences in the areas of communication, advocacy skills, and skills transfer. Data analysis was completed using descriptive statistics.

RESULTS: Many participants agreed or strongly agreed their IPE experiences positively impacted their performance in acute care settings. There is a notable increase in the number of professionals who noticed the benefit of IPE when developing skills to advocate and bridging IPE classroom instructions with real-life scenarios. A higher proportion of professionals held more reservations regarding the effectiveness of IPE communication among learners.

DISCUSSION: This study shows the impact IPE experiences have on learners' clinical performance in acute care settings. The results of this survey can inform future IPE experiences. Finding can be translated into courses and experiences for healthcare graduate programs.

1:30 - 1:45 p.m.

Exploring the impact of childhood hospitalization: A survey on patient recollections, environmental influences, and psychosocial factors**Author:** Briana Oakley**Mentors:** Charlotte E. Navarro, OTD, OTR/L & Katherine Jones, Ed.D., OTR/L, CLT-LANA, CWT

BACKGROUND: The hospitalization of a child impedes their daily routines and activities, placing them into an unfamiliar environment surrounded by medical staff and procedures. The purpose of this project is to explore the experiences of hospitalization during childhood and its impact on participation in daily occupations and overall well-being.

METHODS: This study utilized a mixed-methods study design, gathering qualitative and quantitative data. The survey questions were formulated using the Person Environment Occupation Performance (PEOP) model. Convenience sampling was used to recruit participants by posting flyers on social media platforms (i.e., Facebook, Reddit, and CommunOT) and by word of mouth. Participants were included if they (1) were over 18 years old, (2) were admitted to a hospital during childhood, and (3) could read and write in English. Participants were

excluded if they (1) have no recollection of their hospitalization or (2) did not have an official hospital admission before the age of 18 years old. Eligible participants completed an anonymous survey via QuestionPro.

RESULTS: A total of 92 respondents began the survey, with 40 respondents completing it. Of those, 37 respondents met the inclusion criteria with a mean age of 32 years old. Twenty-two (64.86%) respondents stated they did not receive occupational therapy services during their hospitalization, 7 (18.92%) reported they did receive OT during hospitalization, and 6 (16.22%) were unsure if OT intervention was provided during their hospitalization. Survey data from three participants were excluded from the analysis due to not completing the questionnaire. The results and development of the themes of this study are pending.

DISCUSSION: The long-term goal of this study was to identify common themes derived from patient recollections, environmental influences, and psychosocial factors during the acute hospital admission experience that can be addressed within the scope of occupational therapy practice to improve the patient's participation in daily occupations and overall well-being.

1:45 - 2 p.m.

A pre-post survey of concussion knowledge and attitudes following an educational protocol for parents of youth ice hockey players**Author:** Laura Rendler**Mentor:** Matthew Foreman, PhD

BACKGROUND: Concussions are a facet of sports that do not discriminate—regardless of the sport, race, age, or gender. Given the nature of sports and the inevitability of concussions, there will always be a need for at least a basic understanding of the signs and symptoms among parents of athletes. Parents' knowledge and attitudes toward concussions determine whether a concussion is reported or not. The purpose of this study is to identify the gaps in parental knowledge and attitudes regarding concussions so that youth athletes receive the diagnosis and rehabilitation needed to return to their sport safely.

METHODS: This is a one-group pretest-posttest study investigating the parents of youth ice hockey players within the Potomac Valley Amateur Hockey Association (PVAHA) and their changes in knowledge and attitudes regarding concussion as a result of an educational intervention. All participants in the study met the inclusion criteria. Parents were provided a pre-survey to assess their general knowledge

of concussions and attitudes, invited to an educational course, and then asked to complete the survey again to determine if their knowledge of concussions improved after the intervention. Increased knowledge and positive attitudes toward concussions were the primary outcomes of this study. Data was analyzed using Microsoft Excel to examine intra-individual changes from pre- to post-surveys.

RESULTS: Fifteen participants qualified for the study based on the inclusion/exclusion criteria and the completion of pre- and post-surveys. After analyzing the data, the primary findings revealed a lack of knowledge regarding overall concussion signs and symptoms. While common symptoms like headaches and nausea were recognized, symptoms such as difficulties with concentration and balance were not frequently clicked in the pre-survey responses.

DISCUSSION: This study highlighted the necessity for a preseason course to review the signs and symptoms of concussions. Parents indicated that such a course would be helpful even for seasoned parents as a refresher before the season, ensuring they stay informed about the latest signs, symptoms, and USA Hockey protocols. This study allows occupational therapists to collaborate with athletes and parents on safely returning to their activities.

2 - 2:15 p.m.

The impact of equine-assisted services on daily function in the pediatric population**Authors:** Isabella Bradley & Ina Womack**Mentor:** Matthew Foreman, PhD

BACKGROUND: Many children begin receiving therapy services at a very young age which can be isolating and make them feel that they are different or there is something wrong with them. Equine assisted services (EAS) provide an intervention that we hypothesize can address therapeutic goals. This project aims to measure the parent-perceived change in cognitive function, motor function, and activity of daily living independence and function for children ages 4-17 following equine-assisted intervention.

METHODS: The study design is a single group, one-way repeated measures design with three assessment points. Eligible participants have a child who is between 4-17 years of age and has a diagnosis of developmental, physical, or social emotional disability who actively attended EAS sessions at Prancing Horse. Participants were excluded from the study if their child has any contraindications that prevent them from riding/interacting with horses and they cannot attend EAS sessions consistently. Researchers spoke to parents at Prancing Horses about the study procedures and obtained informed consent prior to administering the PEDI-CAT assessment at the first, fifth and tenth week of EAS session. The expected outcome of this project is evidence of parent-perceived change in cognitive function, motor function, and

activity of daily living independence as measured by the PEDI-CAT assessment. PEDI-CAT scores will be exported from the assessment portal and statistical analyses will be performed in Excel and Matlab with non-parametric or parametric measures. Research was completed when all PEDI-CAT assessment data was analyzed following the 10th week of EAS lessons.

RESULTS: This project is ongoing, and data is anticipated to cease collection on April 14, 2025 pending any missed sessions or delayed parent response. It is anticipated that the outcome will show improved PEDI-CAT scores in independence and responsibility due to increased confidence and independence during equine assisted services. These findings will help to support the growth of the field in addressing children with disabilities.

DISCUSSION: This research develops the importance of equine assisted services in treating children with disabilities in a way that does not make them feel isolated or different. EAS provides children with interventions that build confidence and independence without pulling them out of classes or requiring them to attend services in the clinic setting. Adding additional interventions to address OT specific goals could greatly benefit these children and further support their growth and decrease instances of learned helplessness. Limitations of this study include inconsistent EAS lesson plans and small sample sizes. This study could be used to further research and determine what interventions can be applied to EAS in order to address OT specific goals.

2:45 - 3 p.m.

Virtual reality-based training for fine motor hand movements in adults with Parkinson’s disease: a case series

Authors: Charli Rosenberg, Jules Roska, Hunter Vaughan
Mentors: Matthew Foreman, PhD & Nikki Kardouni, OTD, OTR/L

Abstract

BACKGROUND: Parkinson’s disease (PD) significantly impacts fine motor skills and quality of life. Deficits in fine motor skills also limit participation and independence in many activities of daily living. This project seeks contribute to fine motor therapy protocols for PD and advocate for virtual reality (VR) as a therapeutic intervention. Central hypotheses: (1) VR training will improve participant fine motor skills, and (2) VR training will positively increase quality of life.

METHODS: This study is a case series with inclusion criteria of (1) being diagnosed with Parkinson’s disease, (2) being able to read and write English, (3) be able to travel to and from Methodist University, (4) are 18 years of age or older, and (5) scored between 0.5 to two standard deviations below average based on the Parkinson’s Nine-Hole Peg normative data. Participants completed VR sessions two times per week for six weeks with pre-intervention and post-intervention assessments.

RESULTS: Results of this current study are pending.

DISCUSSION: The expected outcome is that VR training will increase fine motor skills in individuals with PD, increasing their quality of life. Descriptive statistical analysis was conducted using Excel and confidential software to evaluate the effectiveness of VR as an intervention for fine motor deficits in individuals with PD.

3 - 3:15 p.m.

Enhancing fine motor skills in Parkinson’s disease: A grant proposal for virtual reality-based training in hand rehabilitation

Authors: Kamryn Bell & Khaile Jones
Mentor: Matthew Foreman, PhD & Nikki Kardouni, OTD, OTR/L

Abstract

BACKGROUND: This study aims to investigate the effects of virtual reality-based training on fine motor deficits in individuals with Parkinson’s disease. Parkinson’s disease is a neurodegenerative disorder that significantly impairs both gross and fine motor functions, severely affecting quality of life and daily activities. Current therapies primarily address gross motor deficits, while few specifically target fine motor rehabilitation. As part of an application for a grant to participate in this research, we seek to contribute to understanding how virtual-reality-based interventions can enhance fine motor skills and quality of life for individuals with Parkinson’s disease.

METHODS: This case study uses a mixed-methods approach to assess the impact of virtual reality training on fine motor function and quality of life in a single participant with stage I-III Parkinson’s disease. The primary hypotheses are that (1) virtual reality training will improve fine motor hand movements, (2) improvements in fine motor skills will lead to increased quality of life, and (3) virtual reality training will enhance patient participation and satisfaction with occupational therapy. The participant will use virtual-reality-based training sessions twice weekly for six weeks, with pre-and post-assessments including the Purdue Pegboard Test, 9-Hole Peg Test, and PDQ-39.

DISCUSSION: Virtual reality training is expected to positively impact fine motor skills, improving quality of life and higher satisfaction with therapy. Findings from this study could provide valuable insights into integrating virtual reality into existing Parkinson’s disease rehabilitation programs, advancing occupational therapy practices for individuals with Parkinson’s disease. By securing this grant, we hope to develop my skills further and contribute to this innovative research in Parkinson’s disease rehabilitation.



3:15 - 3:30 p.m.

3D printing for orthosis fabrication: A survey of occupational therapists and other rehabilitation professionals

Authors: Deanna Glus & Kayla McIntosh
Mentor: Matthew Foreman, PhD

Abstract

BACKGROUND: Within the field of occupational therapy, there is a gap in the practical implementation of 3D printing for orthoses fabrication, despite the cost-effective and highly customizable features associated with 3D printing versus traditional orthoses fabrication methods. By surveying occupational therapy providers and other rehabilitation professionals, we aim to document current practices, perceived obstacles, and implementation readiness for the usage of 3D printing for the orthosis fabrication process.

METHODS: This is a cross-sectional, descriptive study. A survey was designed to determine rehabilitation professionals’ opinions of 3D printing implementation, feasibility, education, usefulness, and

familiarity. The electronic survey was distributed via QuestionPro through email and social media groups using fliers and QR codes. Participants were excluded if they were full-time students or did not consent. The 16-question survey consisted of both open-ended and fixed-response questions to include nominal, categorical, interval, and ratio data. The analysis was completed using QuestionPro and Microsoft Excel.

RESULTS: A total of 62 responses were collected via survey. Participants mainly consisted of occupational therapists, hand therapists, physical therapists, surgeons, physician assistants, and nurse practitioners. Main barriers to usage of 3D printing in practice included time, staffing, and education in software. Six participants reported using 3D printing in practice for the purposes of adaptive equipment, prosthetics, and education.

DISCUSSION: This survey begins to understand rehabilitation professionals’ usage and understanding of 3D printing in professional practice. The exploration of barriers and current usage of 3D printing helps to widen 3D printing applications for occupational therapy practitioners.

3:30 - 3:45 p.m.

Future directions in OT: Gathering student perspectives on the role of 3D printing in orthosis development

Author: Dawson Blanchard
Mentor: Matthew Foreman, PhD

Abstract

BACKGROUND: 3D printing has emerged as a valuable tool in healthcare, offering cost-effective and customizable orthotic solutions. Despite its potential, many occupational therapy (OT) programs lack structured education on its applications, leading to gaps in student preparedness. The purpose of this study is to identify knowledge gaps among OT students regarding 3D printing in orthotic development and assess the impact of an educational workshop.

METHODS: This quasi-experimental study recruited 22 first-year OT students from Methodist University. Participants completed a pre-survey assessing baseline knowledge, perceptions, and confidence using the Technology Acceptance Model (TAM) to evaluate perceived usefulness and ease of use of 3D printing in orthotic development. A

one-hour workshop introduced 3D printing principles, its applications in OT, and hands-on experience in orthotic fabrication. A post-survey, including the same TAM-based measures was given after. Data analysis included Wilcoxon signed-rank tests, and chi-squared tests to compare pre- and post-survey responses.

RESULTS: Participants demonstrated significant improvements in their understanding and confidence in using 3D printing for orthotic fabrication. Post-survey results indicated increased recognition of 3D printing’s clinical applications and feasibility.

DISCUSSION: Integrating 3D printing into OT education enhances clinical preparedness and innovation in orthotic development. This study emphasizes how a brief, one-hour workshop significantly shifted students’ perceptions of 3D printing in clinical practice, highlighting the impact of targeted educational interventions in bridging knowledge gaps. Future research should explore long-term retention of skills and the impact on clinical practice. Expanding 3D printing education in OT curricula can improve patient outcomes and advance rehabilitation technology.





METHODIST UNIVERSITY

DOCTOR OF OCCUPATIONAL THERAPY

For more information, contact:

Methodist University Doctor of Occupational Therapy Program
College of Health Sciences & Human Services

910.484.5518 | 800.488.7110 Ext. 5518
5400 Ramsey St., Fayetteville, NC 28311

Methodist University does not discriminate on the basis of age, race, gender, national or ethnic origin, religion, sexual orientation or disability for otherwise qualified persons in the administration of its admissions, educational policies, scholarships, loan programs, athletics, employment, or any other university-sponsored or advertised program.