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Cross-over function featuring diverse prosthetic technologies as a focus for adaptive sports participation for individuals with ULA

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Cross-over function featuring diverse prosthetic technologies as a focus for adaptive sports participation for individuals with ULA

A Doctoral Experiential Capstone Project

Presented to the Faculty of Western New England University

In Partial Fulfillment of the Requirements for the

Entry-Level Doctorate

in

Occupational Therapy

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by

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July 2022

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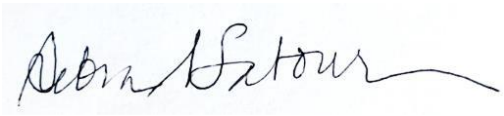
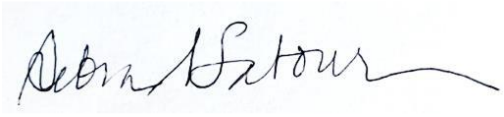


Date: July 26, 2022

Doctoral Experiential Faculty Mentor, Dr. Debra Latour, PP-OTD, M.ED., OTR/L



Date: July 26, 2022

Doctoral Experiential Coordinator, Dr. Debra Latour, PP-OTD, M.ED., OTR/L

Abstract

Upper limb absence (ULA) can have significant decrease quality of life, affecting even the most basic parts of a person's life. Individuals with ULA require lifelong follow up and specialized care to maintain their specific needs, which includes prosthetic training and functional abilities (Jette et al., 2017; Latour, 2022). There is a need for more accessible resources, programs catered towards ULA population, and education on prosthetic technology. As such, the researchers sought to how a virtual-based adaptive sports program could impact ULA individuals' well-being and independence. Un***limb***ited Wellness© is a remote/virtual program established by Dr. Debra Latour PP-OTD, M.ED., OTR/L that serves to inform and empower the ULA population toward improved health and quality of life. Three Doctor of Occupational Therapy Students from Western New England University (WNE) created an extension of the program Un***limb***ited Wellness©. The three-week program comprised of functional fitness, cross-over function featuring diverse prosthetic technologies, and adaptive yoga. Adults with acquired and congenital ULA and any other related conditions (hemiplegia, brachial plexus palsy, etc.) were recruited. Our results suggest that a virtual-based adaptive sports program can improve well-being and independence for individuals with ULA. Development of these sports programs appears critical in improving the quality of life for these individuals.

In addition, the researchers created a groundwork program manual in partnership with Destiny's Ride Therapeutic Program Inc.© which was curated for the ULA population.

Keywords: upper limb absence (ULA), Doctoral Experiential (DEx), prosthetic technology

Introduction/Background

Purpose

There are approximately 1.9 million people with limb loss in the United States, and of this population, upper limb absence affects about 41,000 persons (Amputee coalition, 2019; Braza & Yacub Martin 2020). Upper limb absence (ULA) can be due to congenital, acquired due to a medical condition such as diabetes, cancer, or trauma related (Fletchall, 2016). ULA is present at every level of the upper extremity including above the elbow (trans-humeral) or below the elbow (trans-radial), partial hand (trans-carpal), and an elbow disarticulation or shoulder disarticulation. (Fletchall, 2016). Individuals who have experienced loss of the upper limb may be susceptible to poor physical condition due to the amputation and/or illness preceding to their loss (Bragaru et al., 2011). Based on the current literature and a conducted needs assessment, there is a lack of evidence assessing sports programs effects on individuals with ULA. The purpose of the Doctoral Experiential Capstone Project is to answer the previously mentioned research question. Accordingly, an educational program will be developed to present the benefits of activity-specific prosthesis technology. The virtual-based adaptive sports program can educate, engage, and empower the ULA population towards occupational health, performance, and well-being.

Review of Literature

Upper limb absence (ULA) has affects daily activities, work, self-care, hobbies, sports, and social activities (Cordella et al., 2016; Soyer et al., 2016). Upper limb mobility is required to maneuver the hand for function during in varying positions around the body (Jette et al., 2017). ULA may be due to congenital differences or acquired as a result of traumatic injury, or related to medical conditions (Fletchall, 2016). Individuals with ULA require specialized care due to various challenges, experiencing functional loss, enduring psychological disability, and suffering

social isolation (Jang et al., 2011). However as stated above, there is not enough evidence assessing virtual sports programs on a variety of topics, specifically functional fitness, adaptive yoga, and diverse prosthetic technologies for individuals with ULA.

Adaptive sports have provided opportunities for individuals with different conditions/abilities to engage in sports and recreational activities. It is empowering because it helps individuals understand their physical and mental capacity (Takagaki, 2020). Participating in recreational sports encourages individuals to accept limb loss and improve motor skills (Bragaru et al., 2012).

For individuals with ULA, prosthetic training takes a large amount of time to train, especially depending on the level of amputation and type of device (Jette et al., 2017). About 33.75% of individuals with proximal upper limb loss have rejected prostheses due to fit, comfort, ease, and aesthetics (Datta et al., 2004). Specific/specialized prostheses are needed for certain recreation and sports activities. For example, individuals can use different prosthetic adaptations for baseball (Bragaru et al., 2012). Other essential features to recreational prostheses are secure suspension, durability, and ideal weight (Webster et al., 2001). More research regarding prosthesis use and rehabilitation process for the ULA population is needed to influence the funding sources towards of devices and services (Jette et al., 2017). A specialized clinical team plays a crucial role as educators about the current prosthetic devices available, benefits and limitations of different prostheses for sports (Sayed Ahmed et al., 2017).

Through the extensive literature review and needs assessment, the gaps in care include the need for prosthetic training programs, need of specialized providers, and need for more programs specifically catered to ULA population (Datta et al., 2004; Latour, 2022). Virtual care

and adaptive sports programs a way to connect and educate within the community. A full comprehensive literature will be located in Appendix A.

Resource Availability

There are resources available to individuals for upper limb absence. Table 1 presents a variety of organizations and programs that serve as resources to the upper limb absence population. Despite this exhaustive list, there remains demand for more programs and resources specifically catered to the ULA population. A comprehensive needs assessment with details of SWOT analyses will be located in Appendix B.

Table 1: Resources

Organization	Mission
Amputee Coalition of America	To empower individuals with limb loss through education, support, and advocacy. This organization provides resources and programs to the population, providers, and overseers and stakeholders.
American Board for Certification O & P	Establish and advocate for highest patient care and organizational standards in the provision of safe and effective orthotic, prosthetic and pedorthic services
Ampower	Provides resources of peer mentorship, education, and community
Destiny's Ride Therapeutic Program Inc.©	This riding program provides riding lessons and horsemanship skills to children and adults. Specific programs/services are available to amputee population
Handspring Clinical Services	Providing holistic care to prosthetic patients with the newest and latest advancements of upper limb prosthetic technology
Handsmart	Support and empower by creating and updating resource-based evidence for those with upper limb loss/difference
Limbs 4 Life	Non-profit organization that provides accessible and affordable prosthetic care
Single-Handed Solutions, LLC	Debra Latour owner of single-handed solutions provides consulting services to researchers, clinical providers, and individuals with upper limb absence
TRS Prosthetics	TRS Inc. (Therapeutic Recreational Services) is company that specializes in sports prosthetics for individuals with upper limb absence

Un***limbi***ted Wellness©	A remote/virtual program of Single-Handed Solutions that serves to inform and empower individuals with upper limb absence to likelihood of secondary conditions, managing physician appointments, managing awkward social situations, communicating with medical professionals, and organizing one's own medical information toward self-advocacy
Yoga for Amputees *by Marsha T Danzig*	Provide health, wellness, freedom of movement, psychological healing, spiritual renewal to amputees through yoga education

Theoretical Framework

The researchers utilized the Person-Environment-Occupation-Performance (PEOP), the Model of Human Occupation (MOHO), and Boyers Model of Scholarship of Application.

The PEOP is to understand the barriers, environment and occupation that effect their participation in sports participation and well-being (Baum et al., 2015). This model analyzes the intrinsic and extrinsic factors that effects of everyday occupations (Christensen et al., 2016). The intrinsic factors are individual specific and comprise of the physiological, cognitive, spiritual meaning, psychological, and neurobehavioral elements. The extrinsic factors include social support, social and economic systems, culture, and values. The researchers used framework to gain a greater understanding of the participants engagement in sports/recreation activities.

The MOHO was used to develop a deeper understanding of each individual's occupation as it interacts with the individual's environment (Wook Lee et al., 2012). There are three components to MOHO: volition, habituation, and performance capacity (Taylor, 2017). Volition is the motivation for occupation; habituation is the process by which occupation is organized into routines and patterns; and performance capacity is the individual's physical and mental abilities affecting occupational performance. Individuals with ULA require lifelong care and by utilizing the MOHO, it will unearth potential obstacles towards occupational life (Jette et al., 2017).

The Boyers Model Scholarship of Application was used for application to the Capstone Project. The capstone focus area that was utilized were Program Development (Clinical) and Advocacy (DeIuliis, 2019). For Program Development, the video modules and manuals created will be used as a resource for the clinical team and future practitioners. For Advocacy, the program materials will be disseminated to the ULA population to improve overall access to care.

Doctoral Experiential Overview

Project Overview

The WNE OTD Doctoral Experiential Student Capstone Manual is designed to guide the student through the Doctoral Experiential (DEx) capstone process. The Doctoral Capstone Experience is a 14-week period (560 hours) which occurs after completing both level II fieldworks. It comprises of developing a proposal and work plan, using appropriate resources, completing necessary forms and mandatory information, collaborating, and communicating with faculty mentor and site mentor(s), obtaining IRB approval, and presenting final portfolio and project presentation (WNE Doctoral Experiential Student Manual, 2022). One aspect of the project is to identify the needs of the population and setting of a community partner organization, which can include hospital, clinic, school, health care, social service, advocacy, or educational organization. There are two components to DEx, the first element is the community experiential, and the second element is the scholarly project. The scholarly project is the comprises of the preliminary research question and methodology. The community experiential is the planned activities that can include learning about the population and collaboration with the partnered organizations.

A foundational aspect of the project is to identify the needs of the population and setting of a community partner organization, which can include hospital, clinic, school, health care, social service, advocacy, or educational organization. There are two elements to DEx: the first is the community experiential, and the second is the scholarly project. The community experiential includes planned activities that can include learning about the population and collaboration with partnered organizations. The scholarly project includes refining the research question and developing methodology.

The aim of the Doctoral Experiential Project was to assess the effects of well-being and independence for individuals with ULA and related conditions. By doing so, the DEx wanted to expand upon Un***limb***ited Wellness© by creating a virtual-based adaptive sports program in partnership with Single-Handed Solutions by Dr. Debra Latour. Un***limb***ited Wellness© is a remote/virtual program established by Dr. Debra Latour PP-OTD, M.Ed., OTR/L which serves to inform and empower individuals with upper limb absence to likelihood secondary conditions, managing appoints, managing awkward social situations, communicating with medical professionals, and organizing one's own medical information toward self-advocacy.

The research team assessed this program by completing Upper Limb Prosthetic Rehabilitation mini-course, reviewed the literature, and conducted a needs assessment to implement the program. Each researcher focused on individual aspects and needs based on the gaps in care which led to the development of the program. There are three categories of the video modules: adaptive yoga, functional fitness, and cross-over function featuring diverse prosthetic technologies. This paper will focus on the cross-over function featuring diverse prosthetic technologies, which featured three individuals with ULA sharing their activity specific devices, modifications, and adaptations they use their daily life and to engage in their exercise/sports. For

functional fitness and adaptive yoga, the research team invited individuals who are experts in these areas to provide content for the video modules. Following IRB approval from our institution WNE, participant recruitment was initiated. Amy Ginsburg, CPO, upper limb prosthetist from Handspring Clinical Services assisted in recruiting potential participants to the program from the Handspring Database. Individuals 18 years and older with ULA were included in the study. Recruitment components of the program were HIPAA-compliant. The research team created pre and post survey questions and participant satisfaction surveys for the initial and final focus groups to assess the effectiveness of well-being and independence of adaptive sports participation. The data was analyzed to determine if there were significant improvement to daily life following implementation of the program. The Certificate of completion of Upper Limb Prosthetic Rehabilitation mini-course will be located in Appendix C. The full IRB application will be located in Appendix E.

Therapeutic riding, specifically groundwork, may also have some benefit for individuals with ULA (Ponkos, 2015). As such, the DEx group partnered with Jodie O'Connell-Ponkos COTA, PATH to create a groundwork program manual and received hands-on training at Destiny's Ride Therapeutic Program Inc.© to understand the importance of safety and awareness of therapeutic riding. Groundwork is vital to horsemanship; it involves creating a relationship with the horse through trust and cooperation. The activities involved in groundwork can include grooming, leading the horse, longeing, and much more (Smith 2007; Stafford & Oliver, 1991). Longeing is a technique to exercise the horse, develop balance rhythm, and improve the horse's gaits (*Horse Longeing (Lunging) Benefits and Uses by Cherry Hill*, 2006)

Community Experiential Component

The researchers created an Un***limb***ited Wellness© 2022 Resource guide for the ULA population which highlights functional fitness, adaptive yoga, and cross-over function featuring diverse prosthetic technologies from the video modules. There was a total of nine video modules for the virtual-based adaptive sports program: 3 adaptive yoga, 3 diverse prosthetic technologies, and 3 functional fitness. All video modules are available and viewable on the Handspring YouTube Channel as resource and guidance for the ULA population, clinical team, and the overseers and stakeholders.

The DEx group partnered with Jodie O'Connell-Ponkos, COTA, PATH to create a groundwork program manual for Destiny's Ride Therapeutic Program Inc.©. The groundwork program highlighted introduction to therapeutic riding, safety awareness & addressing fears about riding, groundwork activities, diverse prosthetic technologies during grounding activities, and fitness training to prepare for therapeutic riding. The researcher's individual focus for the manual was diverse prosthetic technology during grounding activities. This section covers prosthetic devices during grounding activities, type of devices that may be used, and modifications that can be implemented.

Scholarly Project: Un*limb*ited Wellness© Virtual-Based Adaptive Sports Program

The scholarly component of the DEx comprises the research reporting includes the background, statement of problem, purpose, research question, methodology, population, data collection, results, discussion, and conclusion. In this scholarly project, the researcher created research questions based on the gaps in care from the needs assessment and review of literature. The surveys, informed consent forms, methodology of the Virtual-based adaptive sports program was approved by the Institutional Review Board (IRB) at Western New England University

(WNE). Additionally, receipts of application confirmation abstracts sent to New England Rural Telehealth Association and American Academy Orthotics & Prosthetics will be located in Appendix D.

Research Question

Research Question 1: For individuals with ULA, does a virtual-based adaptive sports program improve well-being and increase sports participation?

Research Question 2: Can an informative program of the functional benefits of activity specific prosthesis promote awareness and understanding for individuals with ULA?

Research Question 3: Can a curated virtual program educate, engage, and empower the ULA population?

Methodology

Program Goal

The goal of this project is to explore the impact of virtual-based adaptive sports programs on well-being and independence for individuals with ULA. To engage, empower, and educate the ULA community through a virtual program.

Participants

Inclusion criteria for participants were: 18 years of age and older, individuals with upper limb absence or any other related conditions (hemiplegia, brachial plexus injuries, etc.). A total of four participants participated in the individual pre-screening interview. Four individuals with ULA were eligible to participate in the program.

Sampling

The participants were recruited by convenience sampling through Handspring Clinical Services. Participants did not receive any compensation to participate in this program.

Data Collection

Participants were recruited through convenience sampling through Handspring Clinical Services by site mentor Amy Ginsburg. Participants will email the researchers of interest to participate in the program. Participants participated in a pre-screening semi-structured interview which was conducted via zoom. Once participants were deemed eligible and met the inclusion criteria, the participants were sent a welcome email, informed consent forms, and confidentiality forms.

In this study, data was collected quantitative and qualitative, for the qualitative portion of the study was conducted through the focus group and discussion sessions. The researchers coded for similar themes based on the focus group interviews.

Program Timeline

This was a three-week program that occurred for 1 hour per week. Before starting week 1 of the program, participants completed the pre-survey forms of the QuickDASH Sports Module and The Pizzi Health and Wellness Assessment (PHWA). Table 1 displays the program timeline and description of each week. After completing the program, participants completed the participant satisfaction survey to gain insight on how the program can be potentially improved for the future.

Table 1

Program Timeline

Program Timeline	Description of Each Week
Week 1	• Conducted initial focus group involved of introduction of project and the researchers and pre-survey focus group interview questions. • Completion of pre-survey questions (QuickDASH & PHWA) • Released two functional fitness, two adaptive yoga, and two diverse prosthetic technologies video modules
Week 2	• Conducted optional discussion session meeting, this was to learn about the participants thoughts, concerns, and feedback of video modules. • Released final functional fitness, adaptive yoga, and diverse prosthetic technologies video modules
Week 3	• Conducted closing focus group meeting participants comprised of post-survey focus group interview questions • Completion of participant satisfaction survey and post-survey questions (QuickDASH & PHWA) • Discussed and received feedback of the final sections of the video modules

Data Analysis

Once the three-week program has concluded, for the qualitative data, the researchers will transcribe the zoom videos. At least two of the researchers will code for each of the transcribed videos to identify recurring themes. The researchers collaborated to determine the overarching themes of the program will be transcribed.

For the quantitative part, the QuickDASH Sports Module and The Pizzi Health and Wellness Assessment (PHWA) were both collected through Google Forms. The pre and post survey focus group interview questions were calculated and averaged to determine the change in pre-post survey.

Results

Table 2

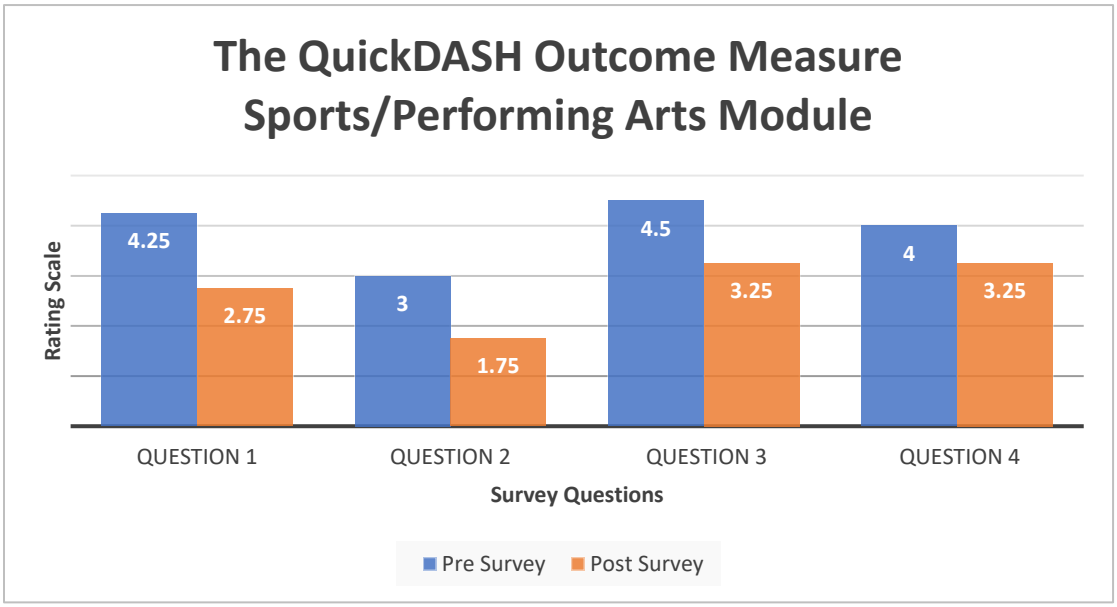
Type of Upper Limb Absence

Participant	Type of Upper Limb Absence	Bilateral or Unilateral	Hand Loss
1	Transradial	Bilateral	Neither
2	Transradial	Unilateral	Neither
3	Transradial	Bilateral	Left Partial
4	Transhumeral	Bilateral	Neither

Table 2 describes the participants' level of upper limb absence.

Figure 1

QuickDASH Outcome Measure Sports/Performing Arts Module



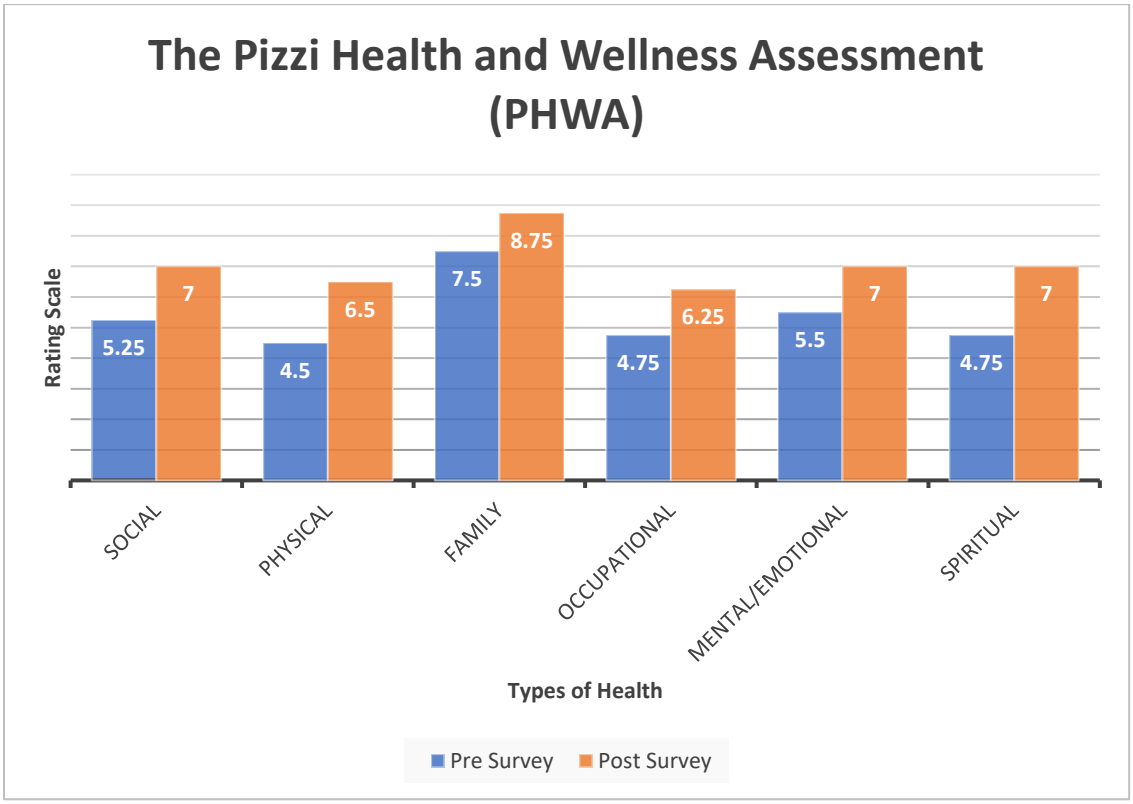
Note. Items were rated on the following Likert scale: 1=no difficulty, 2=mild difficulty, 3= moderate difficulty, 4=severe difficulty, 5=unable.
*Total of 4 participants completed the pre & post survey
*Participant rated questionnaire based on difficulty when engaging in the sport.
*Question 1: Did you have any difficulty using your usual technique when playing a sport
Question 2: Did you have any difficulty when playing sport because of arm, shoulder, or hand pain?

Question 3: Did you have any difficulty playing sport as well as you would like?
Question 4: Did you have any difficulty Spending your usual amount of time practicing or playing sport?

Figure 1 is the *Quick* Disability of the Arm, Shoulder, Hand (DASH) questionnaire Outcome Measure: Sports/Performing Arts optional Module. This optional module is a 4-item self-reporting questionnaire which assesses the impact of the arm, shoulder, or hand when playing a sport for individuals with one or more upper extremity musculoskeletal disorders (*Dash Outcome Measure,* n.d). The QuickDASH utilizes a 5-point Likert scale. Higher score indicates greater disability of their upper limb, and lower scores indicate lower level of disability of their upper limb. The total score of each question was added to reveal the average of the score amongst all four participants. QuickDASH is a self-reported questionnaire which measures the individual's physical function of one or more upper extremity musculoskeletal disorders. The results from this study in the QuickDASH indicated lower disability in overall physical function for individuals with upper limb absence.

Figure 2

Pizzi Health and Wellness Assessment



Note. Items were rated on the following Likert scale 0= being poor & 10= being excellent
*Total of 4 participants completed the pre & post survey
*Participant rated questionnaire on their health and well-being

Figure 2 is The Pizzi Health and Wellness Assessment (PHWA) that is an occupation-based and client -centered assessment tool that analyzes occupational participation in health, well-being, and quality of life (Pizzi, 2001; Pizzi & Richards, 2017). PHWA utilizes a 10-point scale with 0 being poor and 10 being excellent. The total score of each question was added to reveal the average of the score amongst all four participants. The PHWA is a self-reported assessment tool which assesses the health and well-being of clients to their occupations (Pizzi & Richards, 2017). The results from this study in the PHWA indicate an increased well-being and quality of life for individuals with upper limb absence.

Table 3

Focus Group Interview Questions

Focus Group Interview Questions	Pre (n=4)	Post (n=3)	Changes between Pre and Post Survey Focus Group Interview Questions
1. How would you rate your interest in engaging in adaptive sports and/or recreational activities	3.75	4.50	0.75
2. How do you feel about your overall health?	3.90	3.66	-0.3
3. How satisfied do you feel with your exercise routine?	2.00	3.50	1.5
4. How interested are you in engaging in exercise programs or recreational activity?	4.40	4.66	0.26

Note. Items were rated on the following Likert scale: 1=being very dissatisfied & 5=being very satisfied
*A total of four participants participated in the pre-survey
*A total of three participants participated in the post-survey

Table 2 displays focus group interview questions which shows the changes between the pre and post survey interview questions. According to the changes in the pre and post survey, there was a .75 rate of interest in engaging in adaptive sports and/or recreational activities.

Figure 3

Common Themes for the Virtual-based Adaptive Sports Program

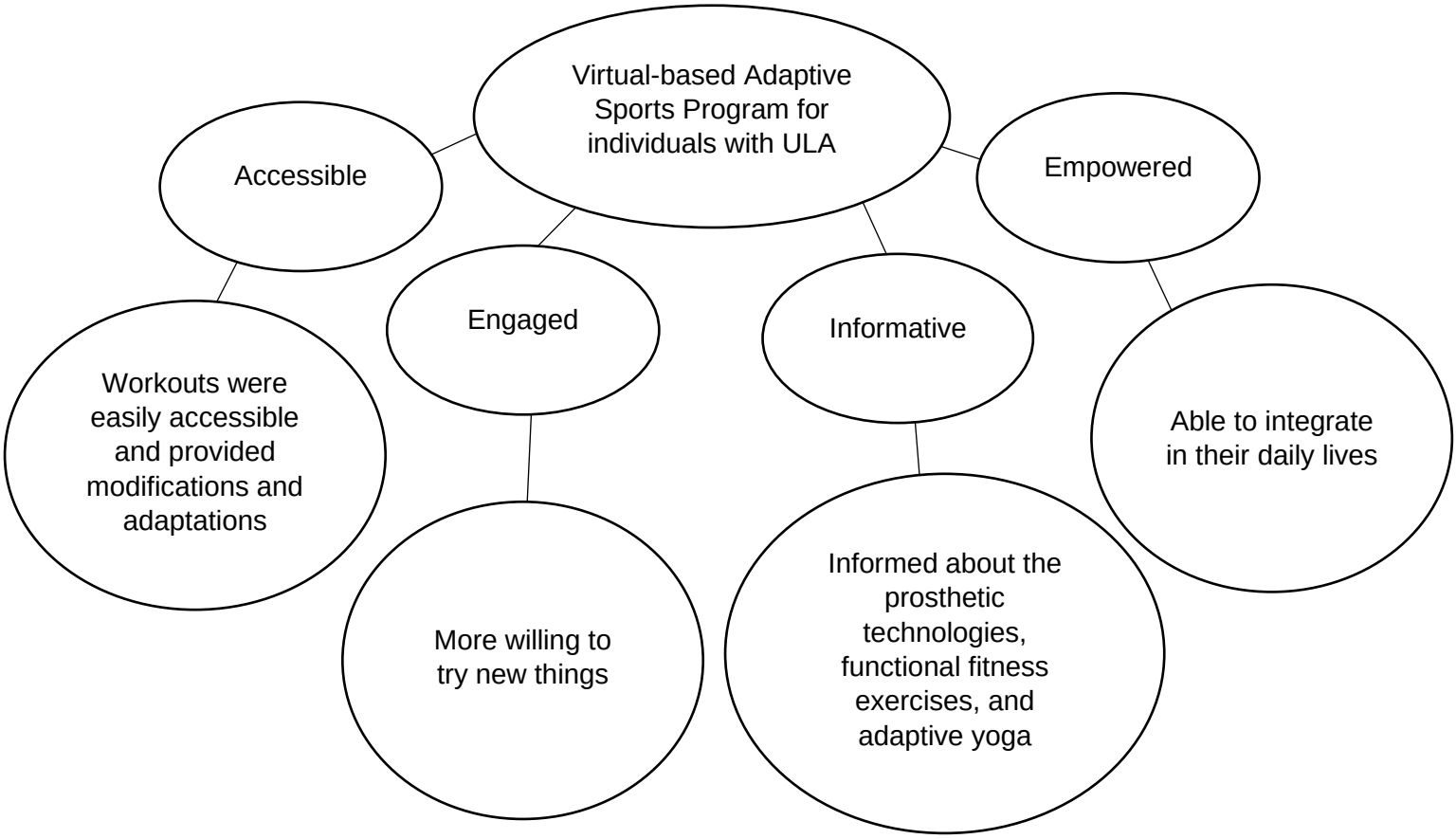


Figure 3 displays the emerging themes from the program. The main themes of the program were accessible, engaged, informative, and empowered. The concept model/map was used to inform about program development to categorize the common and emerging themes from the research study which was reflected on Figure 3 and Figure 4.

Figure 4

Common Themes from Diverse Prosthetic Technologies for individuals with ULA

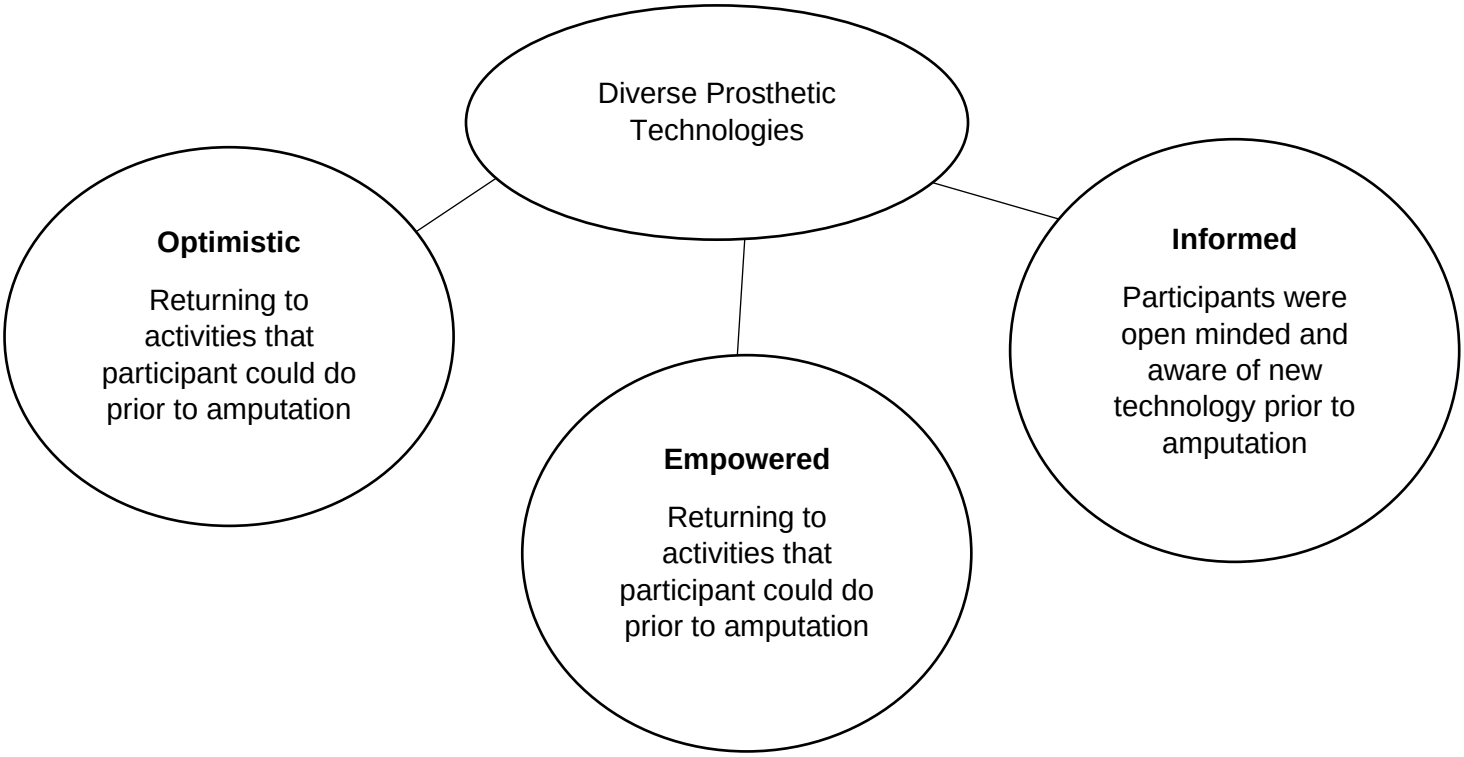


Figure 4 displays the emerging themes from the cross-over function featuring diverse prosthetic technologies. The main themes of the program were optimistic, empowered, and informed.

Table 4

Participant Satisfaction Survey

Participant Satisfaction Survey Questions	Average Rating
The virtual-based adaptive sports program helped to enhance my well-being	4.3
I feel more competent in engaging in adaptive sports and overall exercise	4
The discussion sessions were well formatted and organized	4.6
The video modules enhanced my learning of adaptive sports options for the ULA community	4.3
I would recommend this virtual-based adaptive sports program to friend	4.3

Note. Items were rated on the following Likert scale: 1=Strongly disagree & 5=Strongly Agree
*Total of three participants completed the participant satisfaction survey

Table 4 displays the participant satisfaction survey which was completed by three participants.

Discussion

From our research and knowledge, this is the first study to assess the impact of adaptive sports participation on well-being and independence for individuals with upper limb absence through a virtual-based adaptive sports program. Individuals with ULA require special care due to various challenges, but there is a lack of resources for the limb absence community (Sayed et al., 2017). The virtual-based adaptive sports program was a unique program that offered different components functional fitness, diverse prosthetic technologies, and adaptive yoga. The results of the program indicated that a virtual-based adaptive sports program has improved on well-being and independence for individuals with ULA.

Our results suggested that workouts were easily accessible and found the modifications and adaptations helpful as shown in figure 3. Participants reported that the video modules broadened their own perspective of incorporating physical activity to their daily life. Seeing the

different prosthetic and adaptive devices aid in engagement with their exercise routine. Participants found that the education material about prosthetic technologies, functional fitness exercises, and adaptive yoga was informative. Many individuals with ULA felt empowered to integrate these workouts to their daily life, to incorporate the information they learned from the program, and to see individuals with ULA to be featured in the diverse prosthetic technologies section.

Participants reported that "seeing a person use them instead of an ad, demonstration, or by sales rep, picture is worth a billion words," as shown in figure 4. Participants also stated that seeing the devices being used made that participant interested in receiving the devices. Additionally, participants were optimistic to engage in activities they performed prior to amputation. Creating videos with individuals from the ULA population can make people feel represented and have a sense of belonging, which may empower the participants to take a chance to try different activity-specific prostheses for their sports recreation and to incorporate adaptations to their own workouts.

Four participants completed the survey, there is an overall agreement that the virtual-based adaptive sports enhanced their well-being as shown in Table 4. Video modules enhanced their learning of adaptive sports for the ULA population and improving competency of adaptive sports and exercise. This supports the need for specific programs catered to the ULA population.

Limitations and Future Research

The research team observed several limitations through the study. First, the study intended to occur for six weeks but was reduced to three weeks due to awaiting IRB approval and recruitment time for participants in the study. The second limitation is the sample size which

limits external validity. Larger sample size and longer program is needed to further understand the impact of this program. The third limitation is that surveys can be inherently biased, and the study is not generalizable to other populations. The type of ULA is the fourth limitation, as unilateral and bilateral individuals with ULA have vastly different needs. The fifth limitation is availability of functional testing materials for the ULA population. The QuickDASH assesses physical function of the upper limb, however it is important to include assessments that are specifically customized to ULA population. Further research is needed to determine the impact of adaptive sports participation on well-being and independence for individuals with ULA. Upon formal defense of this project, the following recommendations were to potentially divide the sample size by unilateral ULA and bilateral ULA to further assess the well-being and independence for both of these populations. For future programming, expanding of the video topics by including additional sports/recreation activities, ADLs, and IADLs. As well, including a variety of featured individuals with ULA (bilateral, unilateral, hand loss) to the video modules. Future studies can include other assessments such as a customized survey in collaboration with a prosthetic technologies manufacturer and the Orthotic and Prosthetic Users Survey (OPUS) specifically the Upper Extremity Functional Status Survey (UEFS), OPUS-Satisfaction with Devices (CSD), and OPUS-Health Related Quality of Life Index (HR-QOL) (*Orthotics Prosthetics Users Survey*, 2015). Table 5 includes a full SWOT analysis of the virtual-based adaptive sports program.

Table 5

*SWOT Analysis of Un**limb**ited Wellness©: Virtual-Based Adaptive Sports Program*

Strengths	**Weaknesses**
● Consistent participation including the optional discussion session ● Can access program virtually and their convenience ● Able to provide nine video modules with variety of content ● **Prosthetic section** ○ Helpful to see demonstration by individual with ULA ○ Informative ● **Functional Fitness** ○ Easy to follow workouts ○ Easy to access ○ Grading up workout was helpful ● **Adaptive Yoga** ○ Simple, and easy to follow ○ Adaptable poses geared more towards participant success ○ Easy to integrate into daily routine ● Created resource guide highlighting content from the videos	● Duration of Study ● Small sample size ● Longer wait-time to receive confirmation to participate in program ● Difficulty to cater videos to multiple different types of ULA ● Difficult to cater prosthetic section to all participants ● Study was shortened to three weeks rather than six
Opportunities	**Threats**
● Able to build therapeutic rapport with participants ● Able to create support system among participants ● Access to specialized professionals (OT and prosthetist) during groups ● Able to improve quality of life for individuals with ULA, which can be translated into OT practice ● Increased Un***limb***ited Wellness© participant interest for next year's	● Difficulties finding times for meetings due to prior commitments and time zones ● Differences in technology literacy among participants ● Shorter program may have impacted results ● Difficult for participants to engage in videos due to secondary conditions, bilateral ULA, or lack of modifications

DEx group to create programs ● Provide a good foundation for further research and adaptive program development	

Conclusion

Our study suggests that a virtual-based adaptive sports program with components of different sectors can improve well-being and independence for individuals with upper limb absence. The findings can be used for future program implementation in order to further address health, quality of life, and well-being. Continuation of research can support the need to advocate of services and care for the ULA population.

Doctoral Experiential Learning Objectives

Two years ago, the researcher had a passion to improve access to prosthetic technology. The researcher developed a stronger understanding of prosthetic technology through the Upper Limb Prosthetic Course and readings, certificate of completion will be located in Appendix C. The researcher produced, developed, and edited the video modules for the diverse prosthetic technologies and functional fitness. The video modules are all posted on Handspring Clinical Services YouTube page. The researcher also created diverse prosthetic technologies section for Destiny's Ride groundwork program manual which is a program specifically catered to the ULA population. Participants discussed that the prosthetic technology video modules were informative and educational.

The following objectives were addressed during and achieved by the end of the DEx. The student will:

1. Develop a better understanding of prosthetic technology and the rehab process to improve my ability to collaborate with others in this field, as measured by successful completion of upper limb prosthetic rehabilitation course and journal club.
2. Develop video tutorials (barre, different series of exercise basic conditioning, therapist simulator for prosthesis) in collaboration with Handspring Prosthetics and Destiny's Ride for dissemination of groups for amputee coalition.
3. Develop an educational program for individuals with ULA to promote the importance and functional benefits of activity-specific prosthesis technology, as measured by the recreation module of the Quick Dash and a custom survey.
4. By the end of the therapeutic recreational and fitness programs, combined with Un***limb***ited Wellness©, the participants will have gained an improved sense of well-being, as measured by an increase in their post-evaluation scores on The Pizzi Health and Wellness Assessment.

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Western New England (WNE) Division of Occupational Therapy Doctoral Experiential Student Manual, 2022.

Appendix A: Review of Literature

Background

Upper limb absence (ULA) has an effect on daily activities, work, self-care, hobbies, sports, and social activities (Cordella et al., 2016; Soyer et al., 2016). The upper extremity requires immense mobility to maneuver the hand in varying positions around the body (Jette et al., 2017). ULA may be due to congenital differences or acquired as a result of traumatic injury, or related to medical conditions (Flecthall, 2016). Individuals with upper limb absence experience functional loss, and psychological and social isolation (Jang et al., 2011). Individuals with ULA require specialized care due to various challenges. The goal of review of literature is to investigate current available information toward creating expanded opportunities for inclusion in sports, improve physical and mental health, and provide and improve access to prosthetic technologies.

Understanding About Prosthetic Technology

For individuals with ULA, prosthetic training requires a substantial amount of time to train, especially depending on the level of amputation and type of device (Jette et al., 2017). The benefits of upper-limb prosthetic devices are to improve the comfort, weight, and use of the prostheses (McFarland et al., 2010). Depending on the level of ULA, it may take days to several months for the user to become competent and confident of prosthesis use (Johnson & Mansfield, 2014). However, about 33.75% of individuals with proximal upper limb loss have rejected prostheses due to fit, comfort, ease, and aesthetics (Datta et al., 2004). Access to knowledgeable providers and cost are barriers that have prevented this population to gain knowledge of prosthetic training (Latour 2022 p. 611). There is a need of more evidence of prosthesis use and

rehabilitation process for the ULA population, which can influence the funding sources towards devices and services (Jette et al., 2017). When there are not enough specialized providers, the population will then have difficulty navigating and accessing other resources such as engaging in sports and the specific prosthesis/prostheses to use to participate effectively and safely in the sport. Utilizing a prosthesis during sports can be beneficial for reach, grasp, and bimanual skills (Sayed Ahmed et al., 2017). There are specific/specialized prostheses for certain recreation and sports activities, for baseball individuals can use different prosthetic adaptations to engage in the sport and other essential features to recreational prostheses is secure suspension, durability, and ideal weight (Bragaru et al., 2012; Webster et al., 2001). Specialized care is essential to this population, the clinical team is evident in order to educate the client of the current prosthetic devices available, benefits and limitations of different prostheses for sports (Sayed Ahmed et al., 2017). Resnik et al. (2019), studied the quality and outcomes for Veterans with upper limb loss and discovered a large portion of participants did not receive training to use their first and/or current prostheses. Education is the most important part of the process, individuals may have questions about different prosthetic technologies and need more guidance on how to use them (Latour, 2022).

Need for Adaptive Sports

Engagement in physical activity has persistently shown to have effective improvements in quality of life, life satisfaction, community re-integration (Diaz et al., 2019). Adaptive sports have provided opportunities for individuals with different conditions/abilities to engage in sports and recreational activities. According to Lape et al. (2017), adaptive sports can increase self-efficacy and additionally provide social support. Adaptive sports are empowering because it helps individuals understand their physical and mental capacity (Takagaki, 2020). The benefits

of sports participation are improvement in physical fitness, motor coordination, social participation, and increase in quality of life (Sayed Ahmed et al., 2017). Participating in recreational sports encourages individuals to accept limb loss and improve motor skills (Bragaru et al., 2012). Barriers that may prevent a person to participate in these programs are threat of injury, uncertainty of abilities, lack of awareness of the adaptive sport, and transportation (Lape et al., 2017). To address the gaps in care, there is a need to provide resources and programs accessible to the population. Additionally, there is a need to increase knowledge among the population, coaches, healthcare professionals, and overseers and stakeholders. Lastly, there is a need for a knowledgeable clinical team to provide modifications and adaptations to sport activities specifically catered to the ULA population and provide resources to possibly access the community for peer support.

Virtual-Care

During the pandemic, telehealth and virtual care has immensely developed in a short amount of time. Telehealth provides the convenience to the consumers to access affordable care at their own time and point of location. Telehealth is a vital tool to connect individuals across the nation and close the gaps in care. Currently, there is a variety of virtual physical activity programs/events that can help an individual engage in physical activity. But there are not enough virtual programs specifically catered to the ULA population. However, there is a virtual program called Un***limb***ited Wellness© is a remote/virtual program that provides education and empowerment to the ULA population specifically secondary conditions, managing awkward social situation, navigating and communication with medical professionals (Latour, 2019). Specific programs such as Un***limb***ited Wellness© are essential to the ULA population. A large need is to provide sports programs virtually that is catered to the ULA population, specific topics

can cover education of diverse prosthetic technologies, knowledgeable professionals to provide adaptations and modifications for specific exercises.

The combination of virtual care and adaptive sports programs can be quite valuable to the ULA population. Additionally, gathering knowledgeable providers as a team to curate a program specifically for the ULA population can increase expertise and knowledge in order to advocate for the ULA population. Virtual program provides unification among the ULA community to connect with one another virtually. The ULA population will have access to topics that are catered towards the ULA population. To explore the gaps in care, a needs assessment will be required to further assess the program planning and the implementation of the program.

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Appendix B: Needs Assessment

Needs Assessment

Identification of problem or unmet need

There are about 1.9 million people living with limb loss in the United States, and upper limb absence affects about 41,000 persons (Amputee coalition, 2019; Braza & Yacub Martin 2020. The causes of upper limb absence (ULA) can include from congenital, trauma, peripheral vascular disease, infections, and contractures (Sheehan, 2021). While there are certain programs and resources available to the ULA population, there are still multitude gaps in care for this population. There is not enough published evidence exploring the impact of virtual-based adaptive sports programs that have different video modules on a variety of topics, specifically functional fitness, adaptive yoga, and diverse prosthetic technologies for individuals with upper-limb absence (ULA).

Identification of target population

The target population individuals with upper-limb absence (ULA) ages 18 years and older. This virtual-based adaptive sports program will be an extension of Un***limb***ited Wellness© program, this program will comprise of video modules specifically covering adaptive yoga, functional fitness, and diverse prosthetic technologies.

Resource availability

There are resources available to individuals for upper limb absence. Table 1 presents a variety of organizations and programs that serve as resources to the upper limb absence population. Despite this exhaustive list, there remains demand for more programs and resources specifically catered to the ULA population.

Table 1: Resources

Organization	Mission
Amputee Coalition of America	To empower individuals with limb loss through education, support, and advocacy. This organization provides resources and programs to the population, providers, and overseers and stakeholders.
American Board for Certification O & P	Establish and advocate for highest patient care and organizational standards in the provision of safe and effective orthotic, prosthetic and pedorthic services
Ampower	Provides resources of peer mentorship, education, and community
Destiny's Ride Therapeutic Program Inc.©	This riding program provides riding lessons and horsemanship skills to children and adults. Specific programs/services are available to amputee population
Handspring Clinical Services	Providing holistic care to prosthetic patients with the newest and latest advancements of upper limb prosthetic technology
Handsmart	Support and empower by creating and updating resource based evidence for those with upper limb loss/difference
Limbs 4 Life	Non-profit organization that provides accessible and affordable prosthetic care
Single-Handed Solutions, LLC	Debra Latour owner of single-handed solutions provides consulting services to researchers, clinical providers, and individuals with upper limb absence
TRS Prosthetics	TRS Inc. (Therapeutic Recreational Services) is company that specializes in sports prosthetics for individuals with upper limb absence
Un***limbi***ted Wellness©	A remote/virtual program of Single-Handed Solutions that serves to inform and empower individuals with upper limb absence to likelihood of secondary conditions, managing physician appointments, managing awkward social situations, communicating with medical professionals, and organizing one's own medical information toward self-advocacy
Yoga for Amputees *by Marsha T Danzig*	Provide health, wellness, freedom of movement, psychological healing, spiritual renewal to amputees through yoga education

Barriers of identified problem

There are gaps in care that prevent this population in order to access the resources and care. The barriers comprise of lack of transportation, having to travel further for the

resources/care, inability to participate due to responsibilities at home/job, time management (Sayed Ahmed et al., 2017). Additionally, there is not enough literature in the topic of providing virtual sports programs for individuals with ULA.

SWOT Analysis

The Western New England University occupational therapy students will be expanding upon the Un***limb***ited Wellness© program and will be providing a virtual-based adaptive sports program for the ULA population. My portion of the project will focus on diverse prosthetic technologies for adults with ULA.

*Table 2: SWOT of Un**limb**ited Wellness© Program Virtual-Based Adaptive Sports Program*

Strengths	**Weaknesses**
• Program specifically catered to ULA population • Improve physical and mental health • Improve access to prosthetic technologies • Increase access of opportunity to utilize telehealth through the virtual based program • No transportation needed to access program • Able to complete the program at comfort of home • No cost to attend the program • No cost	• Participant time and commitment • Inability to access technology • Technology literacy • Technical issues may arise during the program •
Opportunities	**Threats**
• Peer support from optional discussion sessions • Connecting with the community • Increase knowledge among overseers, stakeholders, and HC Professionals • Collaborate with other professionals/individuals with	• Security and privacy concerns • Time difference • Unable to access internet due to being in rural area

expertise in their field (adaptive yoga, prosthesis/prostheses users) • Can potentially improve well-being and health when attending the program	

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Appendix C: Certificate of Upper Limb Prosthetic Course

Appendix D: Submission of Poster Abstracts

American Academy of Orthotists & Prosthetists

submission Title:
Virtual-Based Adaptive Sports Program for Individuals with Upper Limb Absence (ULA)

Author(s)

1. Ariane Sudenfield, OTD (Role: Presenter;Author)
2. Mary Grace Sansait, OTD (Role: Author)
3. Jeanne Uwera, OTD (Role: Author)
4. Debra Latour, OTD, M.Ed., OTR/L (Role: Author)

New England Rural Telehealth Association

Impact of Adaptive Sports Participation on Well-being and Independence for Individuals with Upper Limb Absence (ULA)

Western New England University
Mary Grace Sansait, OTD, Ariane Sudenfield OTD, Jeanne Uwera OTD
Debra Latour, PP-OTD, M.Ed., OTR/L

A qualitative study was conducted to determine how a virtual-based adaptive sports program impacts the well-being and independence for individuals with upper limb absence (ULA). The program consists of functional fitness, cross-over function featuring diverse prosthetic technologies, and an adaptive yoga component video modules that specifically cater towards the ULA population. Individuals 18 years of age or older with acquired or congenital ULA and any other related conditions (hemiplegia, brachial plexus palsy, etc.) were included in the study. This poster will share the findings and common themes, data analysis/program evaluation, results, discussion/implications, and future recommendations of our study.

Learning objectives: By the end of the presentation, attendees will be able to:

1. Increase knowledge on how to serve individuals of the ULA population
2. Gain a greater understanding of the benefits of overall participation in adaptive sports
3. Become more knowledgeable on how to modify various exercises and yoga positions specific to different levels of limb absence
4. Increase awareness and access of diverse prosthetic technologies

Appendix E: Institutional Review Board Application

The appendix contains the Institutional Review Board application that the researchers submitted to Western New England University.

WESTERN NEW ENGLAND UNIVERSITY
INSTITUTIONAL REVIEW BOARD (IRB) SUBMISSION FORM
FOR PROPOSAL TO USE HUMAN PARTICIPANTS IN RESEARCH
FWA00010736

Last Modified June 23, 2016

Information regarding the annual meeting schedule of the Institutional Review Board, submission deadlines and requirements, and contact information may be found on the IRB section of the Academic Affairs website located at:

http://www1.wne.edu/academic-affairs/

Date of Application: (MM/DD/YYYY): 05/05/2022

1. Responsible Project Investigator: Dr. Debra Latour

Phone No.: 413-782-1449

Address (Campus address, including box #, if available): 1215 Wilbraham Rd.
Blake Law 220
Springfield, MA 01119

E-mail: debra.latour@wne.edu

2. Investigator (e.g., Graduate Student): See Appendix A

Phone No.:

Address (Campus address, including box #, if available):

E-mail:

3. Title of Project: Impact of adaptive sports participation on well-being and independence for individuals with upper limb absence (ULA)

4. Nature of the Research and Expected Benefit:

Appendix I

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5. Anticipated Duration of the Project

From MM/YYYY: 06/2022 To MM/YYYY: 06/2023

NOTE: Any research project that continues for longer than one (1) calendar year requires that an application be submitted annually for renewal.

6. Is this a request for renewal? ◯ Yes ◉ No

NOTE: If "Yes" please attach the original proposal and committee approval form plus one (1) copy of this proposal and proceed to question number 20.

7. Type of research participant (Include all that apply.) **Indicate the approximate number in each category.**

Undergraduate WNE student (18 years old or older) #		Undergraduate WNE student (less than 18 years old) #		Graduate or Law WNE student #	
WNE employee (18 years old or older) #		WNE employee (less than 18 years old) #		Minor not otherwise specified (less than 18) #	
Off-campus participants (specify including age and #)		Special population (e.g., prisoner, pregnant, disabled) (specify including age and #)			
Other (specify including age and #)	20 individuals who are 18 years of age or older with ULA				

8. Recruitment of participants (Check all that apply.)

☐ Unpaid classroom volunteer ☐ Paid classroom volunteer

☑ Unpaid nonclassroom volunteer ☐ Paid nonclassroom volunteer

☐ Other (Please specify)

9. Expected participant duration and compensation.

Expected Duration (e.g., total hours and length of involvment (days, months) per participant): Appendix J

Expected participant compensation (Check all that apply.)

☑ No compensation ☐ $$ compensation

☐ Other (Please specify)

If applicable, please specify $$ rate

10. Location of the research (Check all that apply)

☑ On-campus ☑ On-Line ☑ Off-Campus

Please specify site (e.g., Springfield campus, Southborough, specific off-campus location)

See Appendix B

NOTE: If off-campus locations are included, please attach a signed permission from a responsible individual (e.g., business owner, school superintendent, principal) for each location.

11. Will the participants be exposed to more than minimal risk?

○ Yes ◉ No

If "Yes" please elaborate in the space below.

12. Attach copies of consent and assent procedures. Consent forms are required if more than minimal risk is involved. Both consent and assent forms are required for any research involving minors. Please see **http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.html** **(Refer to 46.101.)**

13. Procedure(s) used to ensure that participants are aware of their right to refuse to participate in the study, of the behavior they will be asked to manifest and any possible discomfort they may experience, and of their right to withdraw from the study at any time.

Appendix K

14. Confidentiality and anonymity of information obtained (Check all that apply)

- ☐ Participants' responses will be anonymous. (Data are collected in a way that no one (including the researcher) can identify the individual associated with any particular result or response, e.g., a survey with no names or other identifying information.)
- ☑ Participants' responses will be confidential. (Records are maintained in a way that ensures only the researchers have access to any information or results linked to a specific individual.)
- ☐ Other (Please specify)

15. Does the research involve the use of deception?

◯ Yes ◉ No

If "Yes" please elaborate in the space below, describing the deception used and providing a justification of the need for deception.

16. Does the research involve debriefing of participants?

◉ Yes ◯ No

If "Yes" please provide an explanation in the space below describing how (e.g., spoken, with written statement) and when the participants will be debriefed. If "No" please provide an explanation of why debriefing is not necessary.

There will be an optional discussion session after completing each of the video modules. The discussion will occur the following week after the video is released. Each session will last approximately for 60-minutes via Zoom.

17. Is the proposed research consistent with the Belmont Principles and the American Psychological Association's* ethical principles concerning research with human participants?

(●) Yes ( ) No

18. In the space below, please provide a brief description of the methods to be employed in the research, including a description of the participants and how you plan to recruit them, the materials to be used, and the research procedure(s).

Appendix L

19. Are you applying for an exemption? (●) Yes ( ) No

NOTE: If "Yes" please submit the Exemption Code # in the space below, citing your specific reason. For a listing of reasons, go to http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.html (Refer to 46.101.)

46.104.d.2.ii: uses educational tests, surveys, interviews; any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation.

20. I certify that I have read the the Belmont Principles (http://www.hhs.gov/ohrp/humansubjects/guidance/belmont.html) and the American Psychological Association's* ethical principles concerning research with human participants (http://www.apa.org/ethics). I will adhere to the policies and procedures explained therein. Should changes in the procedure or consent form described above (or in related documents) become advisable, I will submit them to the IRB for approval. I understand that the responsibility for the ethical conduct of the study rests with the responsible faculty investigator. I agree to report any participant's complaints that may arise to the IRB.

NOTE: It is strongly recommended that all researchers consult the education training materials available on human subjects research protection at: http://www.hhs.gov/ohrp

(*Departments or Colleges/Schools that have established their own Human Subjects Committee may substitute the appropriate professional organization's ethical guidelines for research after approval from the IRB.

All applications should be submitted electronically. An electronic signature can be used or alternatively, in addition to the electronic copy, a hard copy with a written signature can be scanned and emailed/mailed. If a full review is required, ten (10) signed copies must also be submitted in hard copy.

1. Responsible Project Investigator's Signature:	See Appendix M	Date	06/01/2022
2. Investigator's Signature, If Different:	See Appendix M	Date	06/01/2022

You may not begin conducting any aspect of the proposed study until such time as you have received written approval for the proposal.

Appendix A - Investigators

Primary Investigator:

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Appendix B- Recruitment Email & Virtual Flyer

Dear Potential Participant,

We are occupational therapy doctoral students from Western New England University and we are working towards our doctoral project which focuses on the impact of adaptive sports participation for individuals with upper limb absence (ULA) or any other related conditions. Related conditions include hemiplegia, brachial plexus injuries, etc. This project includes virtual-based adaptive sports modules that will be available for you to participate in at your convenience within a week of receiving them. The video modules may include a functional fitness module, adaptive yoga module, and a cross-over function module which includes diverse prosthetic technologies. Following your participation in the module, you will be encouraged to attend a weekly discussion with other participants via Zoom.

This study has been approved by the Western New England University Institutional Review Board (IRB). All information gathered will be confidential and no names will be included in findings to the public.We received your contact information from Amy Ginsburg and are looking for you to participate in our study. The virtual-based adaptive sports program is a 4 week program composed of video modules that range from 15-30 minutes and viewing of modules will occur during weeks one and three.You will be required to complete at least one virtual-based adaptive sports module of your choice. Then it will be followed up with an optional 45-60 minute discussion session durings weeks two and four after viewing the video modules. Please respond within a week for your interest in participating in our program. If interested, please reach out to at least one of the secondary investigators who are occupational therapy students at Western New England University. Their emails are marygrace.sansait@wne.edu, ariane.sudenfield@wne.edu, jeanne.uwera@wne.edu.

Thank you,
Mary Grace Sansait OT/s, Ariane Sudenfield OT/s, and Jeanne Uwera OT/s

PARTICIPANTS NEEDED FOR RESEARCH STUDY ON VIRTUAL-BASED ADAPTIVE SPORTS PROGRAM FOR INDIVIDUALS WITH UPPER LIMB ABSENCE

The study has been approved by Western New England University Institutional Review Board

WHAT IS THE STUDY ABOUT?

This research study seeks to identify the impact of adaptive sports participation on well-being and independence for individuals with upper limb absence (ULA) or related conditions

WHO QUALIFIES?

- Must be 18 years or older
- Any form of acquired or congenital upper limb absence, or related conditions

WHAT ARE THE BENEFITS OF PARTICIPATING?

- Understand the impact of virtual based exercise program with ULA
- Improve independence and general well-being
- Will have the opportunity for peer support and connect with others in the population

PARTICIPATION INVOLVES

- 4-week program video modules range from 15-30 minutes
- Required to choose at least one module of your choice
- Video modules include functional fitness, adaptive yoga, cross-over function module which includes diverse prosthesis technologies
- Optional 45-60 minute discussion sessions every other week via Zoom

FOR MORE INFROMATION, PLEASE CONTACT THE INVESTIGATORS:

Marygrace.sansait@wne.edu, Ariane.sudenfield@wne.edu, Jeanne.uwera@wne.edu

Appendix C-Part 1
Pre-Screening Interview Questions

This survey will include a series of questions that determine your eligibility to participate in this program.

Participant Name: _____

Participant Age:_____

1. Do you have congenital or acquired upper limb absence? If yes, please state what type. If not, please list any related conditions that you may have (e.g. hemiplegia, brachial plexus injuries, etc).

2. Are you interested in participating in virtual-based adaptive sports (such as a functional fitness, adaptive yoga, and a cross-over function module which includes diverse prosthetic technologies) in order to improve your general well-being and independence? Video modules will be sent bi-weekly and will be completed at your own pace.

3. Do you have any other secondary health conditions? (e.g. traumatic brain injury, post-traumatic stress disorder, heart condition)

4. Do you use a prosthesis/prostheses when exercising? And if so, what type of prosthesis/prostheses?

5. How can we help you succeed in our program?

Appendix D - Part 2
Welcome Email

Dear Potential Participant,

We are writing to inform you that you are eligible to participate in the virtual-based adaptive sports program for individuals with upper limb absence (ULA) or any other related conditions. Related conditions include hemiplegia, brachial plexus injuries, etc. We received your contact information from Handspring due to your possible interest in participating in our program. If you agree to participate in our research project, please reply to us in the next 48-72 hours with your response of either Yes or No to participate in this study.

If yes, we will be sending follow up emails of consent forms to be signed prior to starting the program, focus groups, instructions to access the video modules, and optional discussion meetings.

We thank you for your time and patience, if you have any further questions regarding the research study, please email us back at marygrace.sansait@wne.edu, ariane.sudenfield@wne.edu, jeanne.uwera@wne.edu

Thank you,

Mary Grace Sansait OT/s, Ariane Sudenfield OT/s, Jeanne Uwera OT/s

Appendix E - Part 1
Pre-Survey: Focus Group Interview Questions

Please consider the following topics and questions in preparation for our focus group discussion activity. For the following questions with a rating scale, please rate each answer on a scale from 1-5, with 1 being very dissatisfied/not interested and 5 being very satisfied/very interested. Please answer the other questions without a rating scale as you see fit.

- How would you rate your interest in engaging in adaptive sports and/or recreational activities?
  1 2 3 4 5

- How do you feel about your overall health?
  1 2 3 4 5

- How many hours do you exercise in a week?

  _____

  - How satisfied do you feel with your exercise routine?
    1 2 3 4 5

  - How interested are you in engaging in exercise programs or recreational activity?
    1 2 3 4 5

- How do you perceive your prosthesis? Some examples for discussion include:
  a. As a tool that you use purely for function
  b. As a tool that you use for social purposes
  c. As an extension or a part of your body or self-identity
  d. As a combination of any, all or other purposes e.g. activity specific

  _____

- Please share with us your experiences, if any, with seeing others with upper limb differences participating in sports.

  _____

Appendix E - Part 2
Post- Survey: Focus Group Interview Questions

Please consider the following topics and questions in preparation for our focus group discussion activity. For the following questions with a rating scale, please rate each answer on a scale from 1-5, with 1 being very dissatisfied/not interested and 5 being very satisfied/very interested. Please answer the other questions without a rating scale as you see fit.

- How would you rate your interest in engaging in adaptive sports and/or recreational activities?
  1 2 3 4 5

- How do you feel about your overall health?
  1 2 3 4 5

- How many hours do you exercise in a week?

  _____

  - How satisfied do you feel with your exercise routine?
    1 2 3 4 5

  - How interested are you in engaging in exercise programs or recreational activity?
    1 2 3 4 5

- How do you perceive your prosthesis? Some examples for discussion include:
  e. As a tool that you use purely for function
  f. As a tool that you use for social purposes
  g. As an extension or a part of your body or self-identity
  h. As a combination of any, all or other purposes e.g. activity specific

  _____

- Please share with us your experiences, if any, with seeing others with upper limb differences participating in sports.

  _____

Appendix F - Consent Forms

Western New England University
College of Pharmacy / Health Sciences
Informed Consent Form for Participants

Title of Study: Impact of adaptive sports participation on well-being and independence for individuals with upper limb absence (ULA)

Investigators/Institution: Dr. Debra Latour PP-OTD, M.Ed.,OTR/L acts as the primary investigator. Mary Grace Sansait OT/s, Ariane Sudenfield OT/s, and Jeanne Uwera OT/s act as secondary investigators

Introduction

We are inviting you to participate in a virtual-based adaptive sports program for Western New England University (WNEU). The adaptive sports modules will be available for you to participate in at your convenience within a week of receiving them. A 60-minute focus group that will occur at the beginning and end of the program. The video modules may include a functional fitness, adaptive yoga, and a cross-over function module which includes diverse prosthetic technologies. Each video module will take approximately 15-30 minutes. Following your participation in the module, you will be encouraged to attend 60-minute weekly discussion sessions with other participants via Zoom. You are invited to participate in this program because you are 18 years of age or older and have any form of acquired or congenital ULA, or any related conditions. This research consent form explains why the program is being done, what is involved in participating, possible risks and benefits of participation, and rights as a participant in this study. Please read this form carefully and ask any questions that you may have.

Purpose of the Study

The purpose of the study is to understand the impact of adaptive sports participation for individuals with ULA or any other related conditions. The data will be collected to understand the importance of adaptive sports programs for individuals with ULA or any other related conditions.

Descriptions of Study

Prior to your participation in the program, you will need to complete the pre-screening interview questions to determine your eligibility. A 60-minute focus group that will occur at the beginning and end of the program. The 4-week program consists of viewing 4-10 video modules that can range from 15-30 minutes every other week. There will also be optional 45-60-minute discussion sessions every other week via Zoom.You will be provided with pre and post surveys during the virtual-based exercise program.

Risks of Discomforts of the Study

As with any physical activity, it is recommended to consult your physician prior to participating in the video modules. At most, you may find the adaptive sports session may cause physical fatigue. In addition, it is important to note that the topics discussed during the discussion may be triggering. You may find that the video modules cause mental or physical fatigue if you are following along with the instructor. You may decline to participate in any portion of the module that you are not comfortable with and may voice concerns to the investigators at any time.

Benefits of Being in the Study

The purpose of the study is to understand the impact of virtual-based adaptive sports programs for individuals with ULA or any other related conditions.You will potentially improve independence, and general well-being. In addition, you will have an opportunity to connect with others in the population and receive peer support. You will receive no payment for participating in this study.

Confidentiality

The pre-screening interview questions and the video module creation have a risk for some loss of privacy. To help prevent the loss of privacy, your name will not be recorded on any study documents. We will assign each participant a client number which will be included in all study documentation. All records will be kept strictly confidential. Only the site mentor, Amy Ginsburg, who is part of Handspring Clinical Services, will have access to the password protected files. None of the data that we may publish or present in any reports, presentations, or papers will include any information that can identify you as a participant in this study. The pre-screening interview questions and the video modules data will be stored in a password protected file on Handspring's electronic record system for 3 years. Interviewee names and agencies will be coded for confidentiality and only Mary Grace Sansait OT/s, Ariane Sudenfield OT/s, Jeanne Uwera OT/s will have access to codes.

Right to Refuse or Withdraw

The decision to participate in this program is entirely up to you. You have the right to choose not to sign this form. You can stop participating in the program at any time. Tell the investigators immediately if you are thinking about stopping or decide to stop.

Right to Ask Questions and Report Concerns
You have the right to ask questions about this program before, during, or after. If you have any questions about the study at any time, please contact investigators Mary Grace Sansait at marygrace.sansait@wne.edu or (740)-513-6853 Ariane Sudenfield at ariane.sudenfield@wne.edu or (978)-304-6679, Jeanne Uwera at jeanne.uwera@wne.edu or (857)-777-8109, or Dr. Debra Latour at debra.latour@wne.edu or (413)-782-1449.

If you have questions about your rights, general questions, complaints, or issues as a person taking part in this project, you may contact the Chair of the WNEU Institutional Review Board, Jessica Outhouse, at jessica.outhouse@wne.edu or 413-796-2325 and /or WNEU COPHS Institutional Review Board member, Dr. Diptiman Bose, at diptiman.bose@wne.edu or 413-796-2442.

Statement of Consent
Your signature indicates that you have decided to volunteer as a research participant for this study and that you have read and understood the information provided on this form. You must be at least 18 years of age and have ULA or any other related condition. Related conditions include hemiplegia, brachial plexus injuries, etc.

You will be given a signed and dated copy of this form to keep. The original signed consent form will be stored in a locked room for a minimum of three years.

Western New England University
College of Pharmacy / Health Sciences
Audio and Video Release Form for Participants Completing the Program

Title of Study: Impact of adaptive sports participation on well-being and independence for individuals with upper limb absence (ULA)

Primary Investigator/Institution: Dr. Debra Latour PP-OTD, M.Ed.,OTR/L acts as the primary investigator. Mary Grace Sansait OT/s, Ariane Sudenfield OT/s, and Jeanne Uwera OT/s act as secondary investigators

Introduction
This study will involve video and audio recording for your participation in the focus groups in the beginning and end of the program. These focus groups will be recorded and saved on the Handspring Clinical Services website. Your participation will last anywhere from to 60 minute sessions.

Confidentiality
The pre-screening interview questions and the video module creation have a risk for some loss of privacy. To help prevent the loss of privacy, your name will not be recorded on any study documents. We will assign each participant a client number which will be included in all study documentation. All records will be kept strictly confidential. Only the site mentor, Amy Ginsburg, who is part of Handspring Clinical Services, will have access to the password protected files. None of the data that we may publish or present in any reports, presentations, or papers will include any information that can identify you as a participant in this study. The pre-screening interview questions and the video modules data will be stored in a password protected file on Handspring's electronic record system for 3 years. Interviewee names and agencies will be coded for confidentiality and only Mary Grace Sansait OT/s, Ariane Sudenfield OT/s, Jeanne Uwera OT/s will have access to codes.

Right to Refuse or Withdraw
I may withdraw at any time while being interviewed for the project, and even after the interview(s) are complete. Should I withdraw, I understand that all recordings and copies of my interview(s) shall be destroyed. I also acknowledge that I do not have the authority to edit any recordings shown to me. Should I object to any recording, my only options will be to withdraw

from the project, resulting in destruction of my interview recording(s), or request additional recorded interview time.

Right to Ask Questions and Report Concerns

You have the right to ask questions about this program before, during, or after. If you have any questions about the study at any time, please contact investigators Mary Grace Sansait at marygrace.sansait@wne.edu or (740)-513-6853 Ariane Sudenfield at ariane.sudenfield@wne.edu or (978)-304-6679, Jeanne Uwera at jeanne.uwera@wne.edu or (857)-777-8109, or Dr. Debra Latour at debra.latour@wne.edu or (413)-782-1449.

If you have questions about your rights, general questions, complaints, or issues as a person taking part in this project, you may contact the Chair of the WNEU Institutional Review Board, Jessica Outhouse, at jessica.outhouse@wne.edu or 413-796-2325 and / or WNEU COPHS Institutional Review Board member, Dr. Diptiman Bose, at diptiman.bose@wne.edu or 413-796-2442

Statement of Release

I hereby authorize Western New England University and those acting pursuant to its authority to:

a. Record my likeness and voice on a video, audio, photographic, digital, electronic or any other medium

I release the University from liability for any violation of any personal or proprietary right I may have in connection with such use. I understand that all such recordings, in whatever medium, shall remain the property of the University. I have read and fully understand the terms of this release.

_____

Participant's Printed Name

_____ _____

Participant's Signature Date

Appendix G - Confidentiality Agreement

Program facilitators will be using a videoconferencing platform to deliver the Un*limb*ited Wellness program. This platform meets all privacy protection and standards related to the Health Insurance Portability and Accountability Act (HIPAA). It will be provided to you at no cost and will be accessible through a link that is sent to your email.
Please read the following Group Responsibilities for additional information regarding group confidentiality.
* Required

Your Responsibilities as a Group Participant in Un*limb*ited Wellness:
1. You must use a secure (non-public) internet connection to participate in the group.
2. Recording of the discussion sessions by members is strictly prohibited. Group members have the right to legal action if you create or share any audio or video recordings of focus group sessions.
3. In order to maintain the focus group's privacy, it is important to connect from a quiet and private room with no interruptions or distractions from people or other devices. It is imperative that no persons, other than yourself, are in hearing or visual proximity to you during the group meeting.
4. Group members must agree to maintain the confidentiality of other group members. This means that you may not disclose names or other identifying information about group members, nor may you discuss the personal issues and experiences of other members. This includes, but is not limited to, written posts and pictures on social media forums. Discussing your own experience of being in the group with non-members is acceptable.
5. It is important that group members arrive on time and consistently attend sessions in order to minimize disruptions, maximize benefits of the program, and facilitate the group process.

Confidentiality agreement: *
You have the right to confidentiality and privacy by the facilitators and other group members. Confidentiality within the group setting is a shared responsibility of all members and facilitators. While facilitators are bound by HIPAA to protect participant information, group members' communications are not protected by law. As such, confidentiality within the group setting is often based on mutual trust and respect.

- ☐ I agree to the above information and will uphold my responsibility as a group member.
- ☐ I do not agree with the above information. I understand that selecting this box disqualifies me from participating in this program.

Appendix H - Participant Satisfaction Survey

Please complete this participant satisfaction survey to help us gain more insight on how we can improve the program. For the following questions with a rating scale, please rate each answer on a scale from 1-5, with 1 being strongly disagree and 5 being strongly agree. Please answer the other questions without a rating scale as you see fit.

1. The virtual-based adaptive sports program helped to enhance my well-being
   1 2 3 4 5
2. I feel more competent in engaging in adaptive sports and overall exercise
   1 2 3 4 5
3. The discussion sessions were well formatted and organized
   1 2 3 4 5
4. The video modules enhanced my learning of adaptive sports options for the ULA community.
   1 2 3 4 5
5. I would recommend this virtual-based adaptive sports program to friend
   1 2 3 4 5

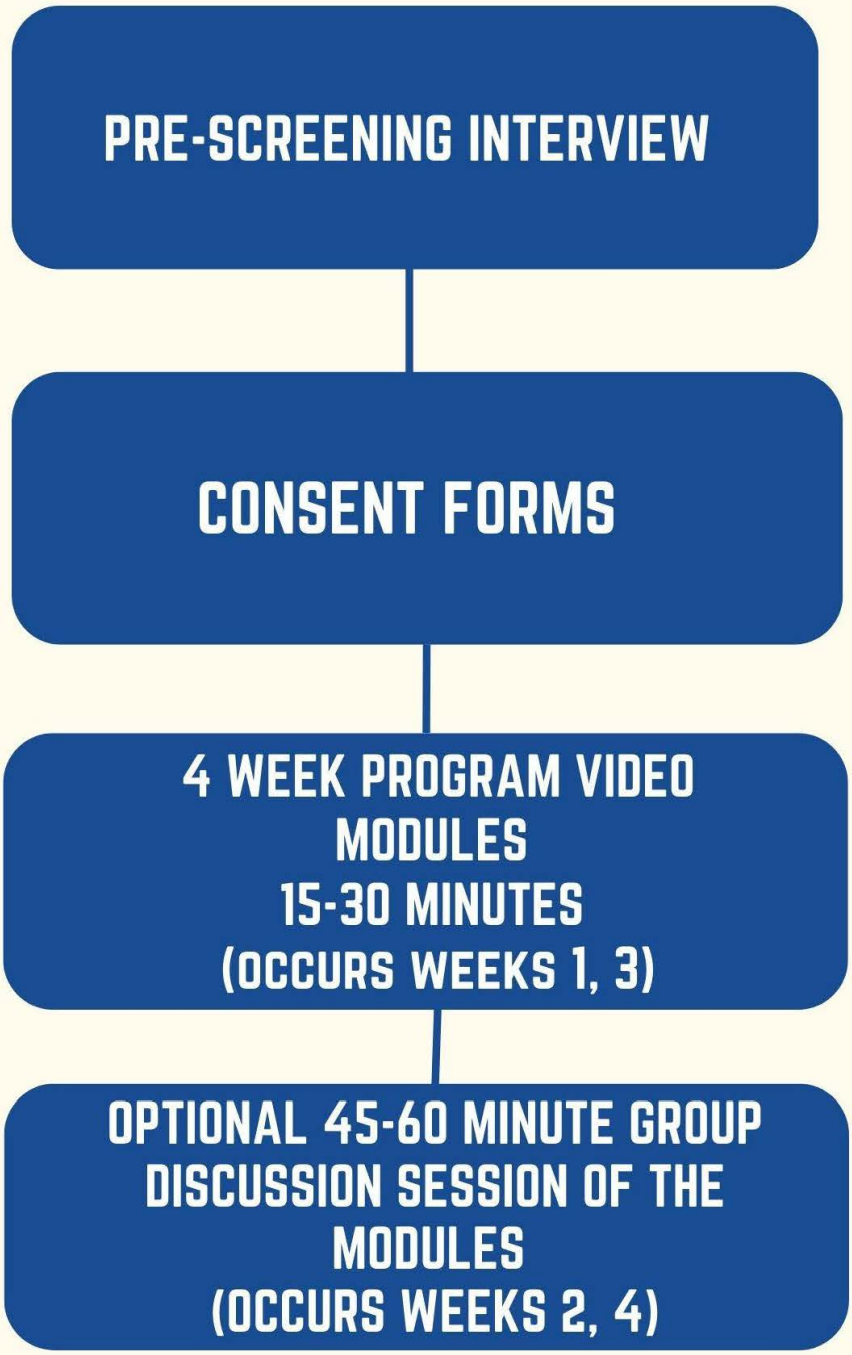
Appendix I- Nature of Research and Expected Benefit

The nature of this research is to develop, implement, and evaluate a virtual-based adaptive sports program for individuals with ULA or any other related conditions. Amount of time to complete virtual-based adaptive sports modules varies from 8 hours, 2 hours to complete the focus groups, and 3 hours to attend discussion sessions. The three modules include functional fitness, a cross-over function module which includes diverse prosthetic technologies, and adaptive yoga. The modules will be completed by individuals with certifications or specialty in their area. This is a qualitative study conducted with audio recorded videos, semi-structured interviews, and discussion sessions. Participants to complete the program will be selected by convenience sampling and will complete at least one virtual-based adaptive sports module. The participants will watch at least 1 module of their choice. The benefits to participate include enhancing well-being and independence for individuals with ULA or any other related conditions.

Appendix J - Expected participant duration and compensation

- A 4-week program consisting of viewing 4-10 video modules every other week
    - The minimum time spent on one video module can be 15 minutes with a maximum time of 30 minutes
- There will be a semi-structured interview for a screening
    - The minimum time spent on the semi-structured interview can be 15 minutes with a maximum time of 30 minutes
- Participants will read and sign the informed consent form, audio and release form, and the confidentiality agreement via Google Forms.
    - The minimum time spent to read and sign the informed consent form, audio and release form, and confidentiality agreement can be 10 minutes with a maximum time of 15 minutes
- Participants will be required to attend a meeting to review their informed consent forms, audio and video release forms, and confidentiality agreements
    - The minimum time spent reviewing the informed consent forms, audio and video release forms, and confidentiality can be 10 minutes to a maximum time of 15 minutes
- Participants will be required to complete the pre and post surveys.
    - The minimum time spent completing the pre surveys will take 15 minutes with a maximum of 25 minutes. The minimum time spent completing the post surveys will take 15 minutes with a maximum of 25 minutes.
- There will be a focus group that will occur at the beginning and end of the program. There will also be optional discussion sessions every other week via Zoom. There will be no compensation for completing the program.
    - The two focus groups will be 60 minutes each session. The two optional discussion sessions during weeks two and four will be a minimum of 45 minutes with a maximum of 60 minutes.

TIMELINE OF THE VIRTUAL-BASED ADAPTIVE SPORTS PROGRAM



Appendix K - Procedure(s) used to ensure that participants are aware of their right to refuse to participate in the study, of the behavior they will be asked to manifest and any possible discomfort they may experience, and of their right to withdraw from the study at any time.

The participants who agree to complete the study will also be sent an audio and video release form and an informed consent form through Google Forms. The audio and video release forms and informed consent forms will be reviewed via Zoom to review and answer any questions regarding the right to refuse and the right to withdraw from the study entirely. The release forms will be signed and sent back to the researchers. Refer to the release forms in Appendix F.

Appendix L - In the space below, please provide a brief description of the methods to be employed in the research, including a description of the participants and how you plan to recruit them, the materials to be used, and the research procedure(s).

This research is oriented towards program development, with the aim to further develop an existing program, Un*limb*ited Wellness is a remote program/virtual that serves to inform and empower individuals with upper limb absence to likelihood of secondary conditions, managing physician appointments, managing awkward social situations, communicating with medical professionals, and organizing one's own medical information toward self-advocacy. The first part of the program is to create virtual-based educational and instructional modules focusing on adaptive sports for the ULA population. The second part of the program measures the efficacy of the program regarding overall well-being and independence.

The research procedure for the participants will include gathering information on the ULA population or any other related conditions, recruiting participants to take part in the program, providing a pre-screening interview questions, sending a welcome email to the program, signing and reviewing the informed consent form, completing and reviewing the audio and video release form, completing and reviewing the confidentiality agreement via Zoom, providing pre surveys and attending the initial focus group, establishing and implementing the program, providing post surveys and attending the closing focus group, and discussing data collected. For more information on the pre-screening interview questions, see Appendix D Part 1. For more information on the pre and post surveys, see Appendix E Part 1 and 2. The questions for the pre survey focus group for the participants are included in Appendix E Part 1. The questions for the post survey focus group for the participants are included in Appendix E Part 2.

Inclusion criteria for participants completing the study includes being 18 years of age or older, having any form of acquired or congenital ULA or any other related conditions. Related conditions may include hemiplegia, brachial plexus injuries, etc. Exclusion criteria for participants completing the study includes being under the age of 18.

Individuals with ULA will be researched and recruited via email by Mary Grace Sansait OT/s, Ariane Sudenfield OT/s, Jeanne Uwera OT/s, Dr. Debra Latour, Assistant Professor and Doctoral Experiential Capstone Coordinator at Western New England University, and Amy Ginsburg CPO and Upper Limb Prosthetist at Handspring Clinical Services. Amy Ginsburg will act as the site mentor for this program. Researchers will gather an email list from Handspring Clinical Services. The facility letter of support to partner with Handspring Clinical Services is included in Appendix N. Un*limb*ited Wellness is a program developed, owned, and distributed by Single-Handed Solutions, LLC, owned by Dr. Debra Latour. Researchers also requested written approval from Single-Handed Solutions, LLC to utilize the Un*limb*ited Wellness program. The approval letter from Single-Handed Solutions, LLC is included in Appendix M. Virtual flyers and recruitment emails included in Appendix C will be sent via email to the clients of Handspring Clinical Services by either Amy Ginsburg. Once the virtual flyers and recruitment email are sent out, potential participants have one week to notify the researchers of their interest to participate in the program.

Pre-screening interview questions will be asked to individuals willing to participate in the program. The individuals will be emailed the pre-screening interview questions two days prior to the semi-structured interview which will be conducted via Zoom. They will be sent and asked the pre-screening interview questions in Appendix D Part 1. Participants will be deemed eligible if they meet the inclusion criteria, which includes being 18 years of age or older, having any form of acquired or congenital ULA or any other related conditions. After being deemed eligible for the program, the participants will be sent a welcome email included in Appendix D part 2. Participants who will be completing the program will sign the audio and video release form and informed consent form through Google Forms in Appendix F and will need to return the form via email within one week. The pre and post surveys will include sections of The Pizzi Health and Wellness Assessment and sections of The QuickDASH Sports Module. The initial focus group will be conducted via Zoom with the pre survey and the closing focus group will also be conducted via Zoom with the post survey. The participants will be emailed sections of The Pizzi Health and Wellness Assessment and sections of The QuickDASH Sports Module. They will have one week to return the two assessments. The questions for the pre survey focus group for the participants are included in Appendix E Part 1. The questions for the post survey focus group for the participants are included in Appendix E Part 2.The questions A higher score on the pre and post The Pizzi Health and Wellness Assessment and sections of The QuickDASH Sports Module will indicate improved independence and well-being. Also, a higher score on the 5 point Likert scale from the pre and post focus group interview questions indicates increased education in adaptive sports and recreational activities. Following the end of the program, each participant will complete the participant satisfaction survey on Google Forms, the questions are located in Appendix H. The forms will be stored in a password protected file for three years on Handspring's electronic record system for the virtual-based adaptive sports programs. Participant names will be coded for confidentiality. Participants who are completing the program will also

need to complete a confidentiality agreement form sent through Google Forms before attending the focus group sessions in Appendix G. Ariane Sudenfield OT/s, Jeanne Uwera OT/s, Mary Grace Sansait OT/s, Amy Ginsburg, and Dr. Debra Latour will have access to the codes.

Materials used will include laptop computers for Zoom.us, word processing, excel processing, audio and video release form, pre-screening template, virtual flyers, and two survey templates.

Appendix M -Letter of Approval from Single-Handed Solutions, LLC

SINGLE-HANDED SOLUTIONS, LLC

June 1, 2022

To Whom It May Concern;

As the Owner of Single-Handed Solutions, LLC, I give my permission to WNE OTD students Mary Grace Sansait, Ariane Sudenfield, and Jeanne Uwera to use the Un***limb***ited Wellness program © 2018 as part of their Doctoral Experiential Capstone project.

With Kind Regards;

Debra Latour, PP-OTD, M.Ed., OTR/L

Appendix N- The Facility Letter of support from Handspring Clinical Services

Handspring
A division of POA Inc.

www.myhandspring.com

Specializing in Upper Limb Prosthetic Care

Handspring Clinics
5 Penn Plaza, 19th floor
8th Ave at 33rd Street
New York, NY 10001

4 Riverside Drive
Middletown, NY 10941

1245 E Colfax Ave
Suite 200
Denver, CO 80218

750 E 100 S
Salt Lake City, UT 84102

Phone: (800) 593-9318
Fax: (845) 344-6829

Clinical Staff
Founder & Clinical Advisor:
Thomas Passero, CP

Director of Clinical Services:
Laura Katzenberger, L/CP

Upper Limb Specialists:
Tim Bump, MSPO, CPO
Chris Fink, MSPO, CPO
Amy Ginsburg, CPO
Megan Hodgson, CPO
Clinical Therapy Consultant:
Debra Latour, OTD, M.Ed., OTR/L

June 1, 2022

Re: Support for Un***limb***ited Wellness program

Dr. Diptiman Bose,
Chair,
Institutional Review Board at Western New England University:

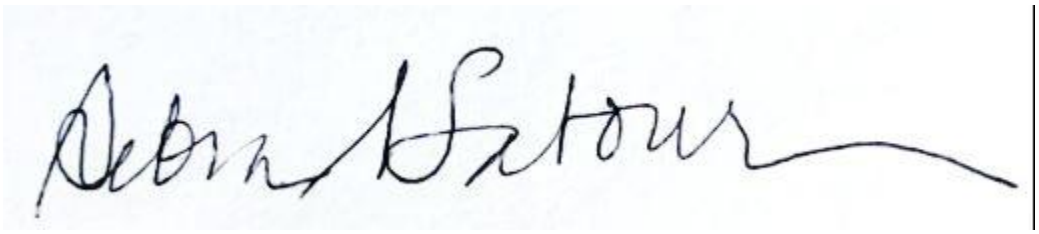
I agree to support the work of Debra Latour and her doctoral students: Mary Grace Sansait, Ariane Sudenfield, and Jeanne Uwera during the proposed development of the Un***limb***ited Wellness program. As Chief Operating Officer of Handspring, I have given Debra Latour, PP-OTD, M.Ed., OTR/L and the named students permission to use our resources to conduct the telehealth portion of their project.

In summary, I support the intent of this proposed study and am pleased to provide the venue for conducting the telehealth program development portion. Please feel free to contact me with any questions or concerns.

Sincerely yours,

Laura Katzenberger, CP, LP
Director of Clinical Services & Chief Operating Officer
Handspring
laura@myhandspring.com
(845) 956-0001

Appendix O - Signatures



1. Responsible Project Investigator's Signature: Dr. Debra Latour OTD, OTR/L Date: 6/01/2022

2. Investigator's Signature: Mary Grace Sansait OT/s Date: 06/01/2022

2. Investigator’s Signature: Ariane Sudenfield OT/s Date: 06/01/2022

2. Investigator’s Signature: Jeanne Uwera OT/s Date: 06/01/2022

Appendix P – Belmont Principles

I certify that I have read the Belmont Principles (http://www.hhs.gov/ohrp/humansubjects/guidance/belmont.html) and the American Psychological Association's* ethical principles concerning research with human participants (http://www.apa.org/ethics). I will adhere to the policies and procedures explained therein. Should changes in the procedure or consent form described above (or in related documents) become advisable, I will submit them to the IRB for approval. I understand that the responsibility for the ethical conduct of the study rests with the primary investigator. I agree to report any participant's complaints that may arise to the IRB.

Dr. Debra Latour OTD, OTR/L

I certify that I have read the Belmont Principles (http://www.hhs.gov/ohrp/humansubjects/guidance/belmont.html) and the American Psychological Association's* ethical principles concerning research with human participants (http://www.apa.org/ethics). I will adhere to the policies and procedures explained therein. Should changes in the procedure or consent form described above (or in related documents) become advisable, I will submit them to the IRB for approval. I understand that the responsibility for the ethical conduct of the study rests with the secondary investigator. I agree to report any participant's complaints that may arise to the IRB.

Mary Grace Sansait OT/s

I certify that I have read the Belmont Principles (http://www.hhs.gov/ohrp/humansubjects/guidance/belmont.html) and the American Psychological Association's* ethical principles concerning research with human participants (http://www.apa.org/ethics). I will adhere to the policies and procedures explained therein. Should changes in the procedure or consent form described above (or in related documents) become advisable, I will submit them to the IRB for approval. I understand that the responsibility for the ethical conduct of the study rests with the secondary investigator. I agree to report any participant's complaints that may arise to the IRB.

Ariane Sudenfield OT/s

I certify that I have read the Belmont Principles (http://www.hhs.gov/ohrp/humansubjects/guidance/belmont.html) and the American Psychological Association's* ethical principles concerning research with human participants (http://www.apa.org/ethics). I will adhere to the policies and procedures explained therein. Should changes in the procedure or consent form described above (or in related documents) become advisable, I will submit them to the IRB for approval. I understand that the responsibility for the ethical conduct of the study rests with the secondary investigator. I agree to report any participant's complaints that may arise to the IRB.
Jeanne Uwera OT/s

Appendix Q – Certificates

ACRP

FOR LEARNING FOR LISTENING FOR LIFE

Certificate of Completion

Association of Clinical Research Professionals certifies that

Debra Latour

has successfully completed

Ethics and Human Subject Protection: A Comprehensive Introduction

Version: Jan 2020

Date of completion: Nov 4, 2020

Jim Kremidas — Executive Director

ACRP

SOCIETY OF BEHAVIORAL MEDICINE

Good Clinical Practice Training for Social and Behavioral Research

CERTIFICATE of COMPLETION

This certifies that

Mary Grace Sansait

SBM tracking ID: 34457

completed the National Institutes of Health Office of Behavioral and Social Science Research good clinical practice for social and behavioral research in clinical trials e-learning course on 7/8/2020.

L. Bullock

Lindsay Bullock
Executive Director, Society of Behavioral Medicine

Society of Behavioral Medicine
555 East Wells Street, Suite 1100 * Milwaukee, WI * 53202
Phone: (414) 918-3156 * Fax: (414) 276-3349
www.sbm.org

SOCIETY OF BEHAVIORAL MEDICINE

Good Clinical Practice Training for Social and Behavioral Research

CERTIFICATE of COMPLETION

This certifies that

Ariane Sudenfield

SBM tracking ID: 34299

completed the National Institutes of Health Office of Behavioral and Social Science Research good clinical practice for social and behavioral research in clinical trials e-learning course on 6/17/2020.

L. Bullock

Lindsay Bullock
Executive Director, Society of Behavioral Medicine

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SOCIETY OF BEHAVIORAL MEDICINE

Good Clinical Practice Training for Social and Behavioral Research

CERTIFICATE of COMPLETION

This certifies that

Jeanne Uwera

SBM tracking ID: 34456

completed the National Institutes of Health Office of Behavioral and Social Science Research good clinical practice for social and behavioral research in clinical trials e-learning course on 7/8/2020.

L. Bullock

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Executive Director, Society of Behavioral Medicine

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