

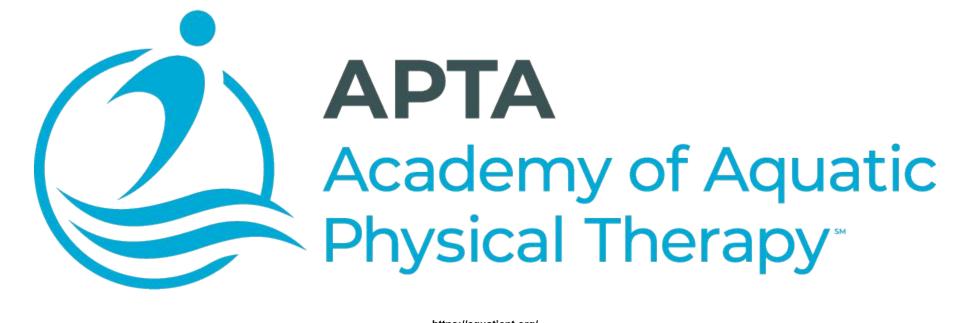
# Clinical Effectiveness of an Aquatic Exercise Program on Those with Visual Impairments: A Protocol Study Maureen Rinehimer, Kalie Ertwine, Marlena Ostrowski, Clare Winton

#### INTRODUCTION

- Mobility deficit is one of the most commonly reported physical disabilities in the United States
- Commonly associated with chronic health conditions - including visual impairment (VI)
- VI impacts equilibrium, balance, coordination, and posture
- Predisposition to a sedentary lifestyle and associated sequelae
- Previous studies have indicated the benefits of physical activity for individuals with VI

#### BACKGROUND

- Aquatic therapy is an evidence-based and skilled practice of physical therapy in an aquatic environment
- Used for varying injuries and maintenance of health-related fitness
- Ample studies have indicated benefits in diverse populations
- Interventions in aquatic therapy
  - Balance training
  - Aerobic capacity
  - Endurance training
- Few studies evaluating aquatic therapy and VI



# PURPOSE

The purpose of this study is to:

- Evaluate if individuals with VI can participate in and tolerate an 8 week aquatic exercise program
- Determine if significant differences will be noted in:
  - Strength
- Endurance
- Cardiovascular fitness
- Quality of life



#### **PARTICIPANTS**

- Up to 20 participants will be recruited for this study using a sample of convenience
- Potential participants will be clients of Northeast Sight Services (NESS) in Exeter, PA
- NESS serves the blind and visually impaired in Luzerne, Wyoming, Wayne, and Pike counties in Northeast PA



OUR VISION IS CLEAR:

## **OUTCOME MEASURES**

- 30 Second Chair Stand Test
- Lower extremity strength
- Six Minute Walk Test
- Endurance
- Modified Borg Dyspnea Scale
  - Shortness of breath
- Borg Rating of Perceived Exertion
- Exertion
- SF-36 Questionnaire
  - Quality of life
- All outcome measures are valid and reliable

# ACADEMY OF AQUATIC PHYSICAL THERAPY PROGRAMS



# INCLUSION AND EXCLUSION CRITERIA

- Inclusion:
- **English speaking**
- 30 to 80 years of age
- Diagnosis of visual impairment
- Alert and oriented to person, place, situation and date
- Exclusion:
- Current rigorous exercise program
- High fever or other COVID-19 symptoms
- Severe cardiovascular cardiopulmonary disease
- Pregnancy or recent childbirth
- Major neurological impairments
- Open wounds
- Incontinence
- Uncontrolled seizure disorders
- Serious fear of water
- Uncontrolled high blood pressure
- Hearing impairments

### **EXERCISE FRAMEWORK**

Program	Examples
10 minute warm up	Marches, Jumping Jacks
20-25 minute strengthening exercises	Forward Straight Leg Kicks, Butt Kicks
15-20 minute aerobic exercises	Walking, Side Steps
10 minute cooldown	Lower Extremity Stretches

- Goal: complete 10 repetitions of strengthening and aerobic exercises
  - Once goal is achieved, progress to increased repetitions or resistance



## DATA ANALYSIS

- Paired T-tests for parametric data
- SF-36, Six Minute Walk Test, 30 **Second Chair Stand**
- Wilcoxon test for non parametric data
- Modified Borg Dyspnea Scale, Borg Rating of Perceived Exertion Scale

## PHYSICAL THERAPY IMPLICATIONS

- If an aquatic exercise program is well tolerated and shown to be effective for those with VI:
  - Viable treatment method for this population
  - Promoting wellness through the use of an aquatic exercise program

# IMPLICATIONS FOR FUTURE RESEARCH

- Future researchers can collaborate with groups such as NESS to expand research into aquatic therapy for individuals with VI
- Larger sample sizes
- Separate groups by diagnosis



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## REFERENCES

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