

# The Effects of Occupational Therapy For Damaged Hand Muscles in Females with Scleroderma

Abby Callahan

Gardner-Webb University, Department of Exercise Science



GARDNER-WEBB  
UNIVERSITY



GARDNER-WEBB  
UNIVERSITY

## Abstract

- Scleroderma limits individuals in normal activities of daily living
- Occupational therapy is recommended for individuals with scleroderma within the first few years of the disease
- Studies have shown that occupational therapy is effective in individuals with scleroderma
- Scleroderma or systemic sclerosis is a complex polygenetic disease that has 2 subtypes:
  - Limited  
Affects individuals' muscles and how they functions
  - Diffuse  
Affects individuals' internal organs (Shah, 2013)
- The purpose of this study is to determine the effects of occupational therapy in damaged hand muscles of females with scleroderma

## Introduction and Objectives

- More than 300,000 Americans live with some type of scleroderma (National Scleroderma Foundation)
- Scleroderma typically effects the female population
- There is approximately 1 in 10,000 female individuals affected by Scleroderma and about 1 man per every 3 to 4 women affected (Peoples et. al, 2016)
- Scleroderma is characterized by Raynaud phenomenon
- Raynaud phenomenon is when some areas of the body can sense hot and cold when stimulated and is accompanied by changes of skin color (Shah, 2013)
- There is currently no cure for Scleroderma
- It takes years to diagnosis an individual with Scleroderma due to how rare the disease is
- Symptoms include:
  - Fatigue
  - Weight loss
  - Musculoskeletal pain
  - Gastrointestinal reflux
  - Nailfold capillary change
  - Edema (Shah, 2013)
- Participants will go through 6 months of occupational therapy with 4 assessments spread throughout that time period
- The goal of this study is for participants hand muscles to become stronger after going through therapy and for them to be able to perform normal activities of daily living with less pain

## Methodology

- Gather participants by reaching out to the National Scleroderma Foundation to find 16 females who are willing to complete the study who are within a 30-mile radius of Shelby, NC
- Gather all participants information by emailing them the following information: the PAR-Q, medical history questionnaire, questionnaires related to how well they can perform normal activities of daily living
- Next the participants will go through the initial assessment evaluation
- After all participants complete the initial assessment, they will start occupational therapy
- Each participant will complete therapy 3 days/week for a 6-month period
- During the 6-month period the participants will complete 2 midterm assessments to determine how much they have improved since the start of the study
- Following the 6-month period the participants will go through a final assessment and complete the initial questionnaire asking how well they can perform normal activities of daily living
- Data will be kept for each participant in separate digital files

## Operational Definitions

- Scleroderma: also known as systemic sclerosis is a chronic connective tissue disease generally classified as an autoimmune disease. The word scleroderma comes from the Greek word "sclero" meaning hard and the Latin word "derma" meaning skin. Hardening of the skin is one of the most visible manifestations of the disease. The disease varies from individual to individual and the disease is not contagious (National Scleroderma Foundation, 2022)
- Occupational Therapy: An allied health professional that involves the therapeutic use of everyday activities to treat the physical, mental, developmental, and emotional ailments that impact a patient's ability to perform day to day tasks (Regis College)
- Diffuse Scleroderma: skin thickening occurs more rapidly and involves more skin areas than limited (National Scleroderma Foundation)
- Limited Scleroderma: skin thickening is less widespread, typically confined to the fingers, hands, and face, and develops slowly over years (National Scleroderma Foundation)

## Conclusion

- In testing the hypothesis, it was assumed that each client completed the therapy as instructed and that they answered all questionnaires honestly
- Further research can be conducted with larger sample sizes and male participants

## References

- Shah, A.A., Wigley, F.M. (2013). My approach to the treatment of scleroderma. *Mayo Clinic Proceedings*, 88(4), 377-393. <http://dx.doi.org/10.1016/j.mayocp.2013.01.018>
- National Scleroderma Foundation <https://scleroderma.org/what-is-scleroderma/>
- Regis College <https://www.regiscollege.edu/blog/occupational-therapy/what-does-occupational-therapist-do-roles-and-responsibilities>

## Acknowledgements

I would like to thank Dr. Hartman, Maggie Jackson, and my fellow Exercise Science students for helping me along the journey of EXSI 432. I would also like to thank my mother for giving me the idea to make Scleroderma my research topic.

Honor Pledge. Abby Callahan

