

Telehealth Delivered Exercise for Older Adults

LAUREN M. ABBATE, MD, PHD

EASTERN COLORADO GERIATRIC RESEARCH EDUCATION AND CLINICAL CENTER

VA



U.S. Department of Veterans Affairs

Veterans Health Administration

Geriatric Research, Education, and Clinical Centers

Objectives

- ▶ Review current literature on telehealth delivered exercise for older adults
- ▶ Promoting physical activity among older adults
- ▶ Identify resources for telehealth delivered exercise programs

Clinical Case: Veteran M

- ▶ 84 yo F with PMH CAD, HTN, GERD, OSA on CPAP, CKD, OA (b/l knees), COPD
- ▶ GERI specific checklist from CPRS documentation
 - ▶ Dementia: no concerns
 - ▶ Depression: no concerns
 - ▶ Dental: no concerns
 - ▶ Falls: fear of falling, 4WW
 - ▶ Incontinence: mixed stress/urge, exacerbated by diuretics
 - ▶ Involuntary weight loss: none
 - ▶ Hearing difficulty: follows with audiology
 - ▶ Visual impairment: not discussed
 - ▶ Social support: sons
 - ▶ ADLs/IADLs: independent
 - ▶ Advanced directive: son POA
 - ▶ Living situation: independent

Clinical Case: Veteran M

- ▶ Referred to Gerofit VA telehealth delivered exercise program
- ▶ Physical function testing – via telehealth
 - ▶ Arm curls (# completed in 30 seconds, 5lbs F)
 - ▶ Chair stands (# completed in 30 seconds)
 - ▶ 2-minute step test (number of times R knee is raised in 2 minutes)



Clinical Case: Veteran M

- ▶ Baseline assessment (9/29/21)

Veteran ranked as follows:

TEST	WHAT IT MEASURES	RANKING & PERCENTILE	
Arm curls	Upper body strength	AT RISK <5%	
Chair stands	Leg strength.....	BELOW AVERAGE	15%
2-Minute step	Endurance.....	AT RISK <5%	

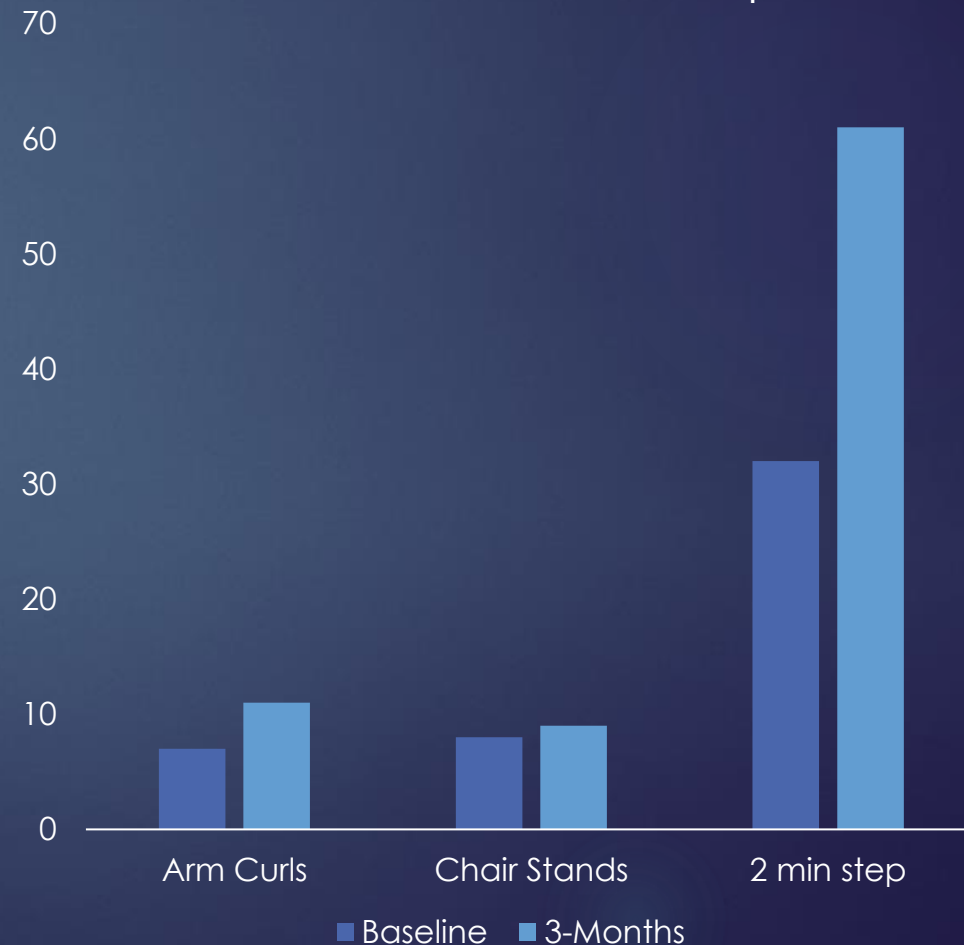
- ▶ Normative values based on age and sex¹

¹Rikli RE & Jones CJ. 1999, *J Age Phys Act*

Clinical Case: Veteran M

- ▶ Participated in 18 telehealth Gerofit exercise sessions over 3 months
- ▶ Baseline assessment 9/29/21
- ▶ 3-month follow up 1/11/22

Physical function test results at baseline and 3-month follow-up



Clinical Case: Veteran M

▶ Baseline assessment (9/29/21)

Veteran ranked as follows:

TEST	WHAT IT MEASURES	RANKING & PERCENTILE
Arm curls	Upper body strength	AT RISK <5%
Chair stands	Leg strength.....	BELOW AVERAGE 15%
2-Minute step	Endurance.....	AT RISK <5%

▶ 3-month assessment (1/11/22)

Veteran ranked as follows:

TEST	WHAT IT MEASURES	RANKING & PERCENTILE
Arm curls	Upper body strength	AVERAGE 35%
Chair stands	Leg strength.....	AVERAGE 30%
2-Minute step	Endurance.....	AVERAGE 25%

In general, these tests indicate improvement from prior testing.

What is telehealth anyway?

- ▶ WHO

- ▶ “The delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interests of advancing health of individuals and their communities.”

- ▶ Comprises 4 elements:

- ▶ Provides clinical support
- ▶ Intended to overcome geographical barriers, connecting users in different physical locations
- ▶ Use of various information and communication technologies
- ▶ Improve health outcomes

What is telehealth anyway?

- ▶ Mobile Health (mHealth) – smartphones, tablets, apps
 - ▶ Various levels of interaction
 - ▶ Telephone, Video
 - ▶ Individual, group : 1 provider:1 patient; 1 provider: multiple patients;
 - ▶ Real time or Transfer of information (e.g., email, messaging, uploading clinical information via wearable devices)
- ▶ Live Video Telehealth Group Exercise – Emerging Area of Interest!

Video Telehealth Group Exercise

- ▶ Attempts to simulate the in-person experience
- ▶ Social support
- ▶ Scalable
- ▶ Improves access to care



+



=



What we know about video telehealth exercise for older adults

- ▶ Feasibility and acceptability
- ▶ Effectiveness
- ▶ Safety
- ▶ Technology

Feasibility and Acceptability

- ▶ Pulmonary rehab for COPD¹
 - ▶ VVC
 - ▶ 18 sessions over 6 weeks, 120 min sessions
 - ▶ RT and PT delivery
 - ▶ Resistance bands/ergometers
- ▶ VHA Gerofit²
 - ▶ transitioned 17 in-person exercise programs to video telehealth group sessions
 - ▶ VHA VVC or Zoom™
 - ▶ Exercise physiologists, PT
 - ▶ Ongoing sessions, 3 sessions/wk



GEROFIT
VETERANS IN ACTION! 

¹Bryant MS, et al. (2019). *Fed Pract.*

²Jennings SC, et al. (2020). *Gerontol Geriatr Med.*

Feasibility and Acceptability

- ▶ Older adults enjoy this format¹
 - ▶ “It makes me consistently do the classes 3 days a week if I’m doing it from home – if I had to decide if I’m going to the gym there is a possibility that I may not go depending on the weather, doctor’s appointment, etc.”
 - ▶ “It’s extremely social, have known a couple guys from CBOC Gerofit and we have carried on, torment each other (kiddingly), it’s fun! Three aspects to quality of life: laughing, exercising, socializing. Gerofit in CBOC or online fills each of those requirements.”

¹National Gerofit telehealth transition survey, unpublished data.

Effectiveness

Cardiac rehabilitation outcomes in a conventional versus telemedicine-based programme

Lance C Dalleck, Lindsey K Schmidt, Richard Lueker

ORIGINAL RESEARCH

Supervised pulmonary tele-rehabilitation versus pulmonary rehabilitation in severe COPD: a randomised multicentre trial

Henrik Hansen,¹ Theresa Bieler,² Nina Beyer,³ Thomas Kallemose,⁴ Jon Torgny Wilcke,⁵ Lisbeth Marie Østergaard,⁶ Helle Frost Andeassen,⁶ Gerd Martinez,⁷ Marie Lavesen,⁸ Anne Frølich,⁹ Nina Skavlan Godtfredsen^{3,7}

Original Research

Group Tele-Exercise for Improving Balance in Elders

GE WU, Ph.D.,¹ and LAWRENCE MALCOLM KEYES, M.S.²

Research

Home-based telerehabilitation is not inferior to a centre-based program in patients with chronic heart failure: a randomised trial

Rita Hwang^{a, b}, Jared Bruning^c, Norman R. Morris^{d, e, f}, Allison Mandrusiak^b, Trevor Russell^{b, g}

ORIGINAL ARTICLE

Home-based telerehabilitation via real-time videoconferencing improves endurance exercise capacity in patients with COPD: The randomized controlled TeleR Study

LING LING Y. TSAI,^{1,2} RENAE J. MCNAMARA,^{2,3} CHLOE MODDEL,⁴ JENNIFER A. ALISON,^{1,5} DAVID K. MCKENZIE³ AND ZOE J. MCKEOUGH¹

The Feasibility of Remotely Delivered Exercise Session in Adults with Alzheimer Disease and their Caregivers

[Lauren T Ptomey,^a](#) [Eric D Vidoni,^b](#) [Esteban Montenegro-Montenegro,^c](#) [Michael A Thompson,^a](#) [Joseph R Sherman,^a](#) [Anna M Gorczyca,^a](#) [JL Greene,^d](#) [Richard A Washburn,^a](#) and [Joseph E Donnelly.^a](#)

Dallack LC, et al. (2011). *J Telemed Telecare*.
Hansen H, et al. (2020). *Thorax*.
Ptomey LT, et al (2019). *J Physical Activity*

Wu G & Keyes LM. (2006). *Telemed J E-Health*.
Tsal LLY. (2017). *Respirology*
Hwang R. (2017). *J. Physiother.*

Safety

- ▶ Medically complex telerehabilitation program (12 weeks)²
- ▶ High intensity telerehab VVC
- ▶ Both individual and group sessions
- ▶ All participants ≥ 50 years with ≥ 3 co-morbidities
 - ▶ Mean age = 61.5 years
 - ▶ Mean co-morbidities = 5.7 diagnoses

²Olivos ME, et al. (2022). Platform Presentation at American Physical Therapy Association Combined Sections Meeting: San Antonio, TX.

Safety

- ▶ Safety planning and protocols developed from:
 - ▶ Safety principles (e.g., VA safety education & protocols and telehealth users)
 - ▶ Engagement (e.g., clinicians, patients, caregivers)
 - ▶ Process improvement (e.g., weekly rounds of events, root cause analysis)

TELEREHAB CHECKLIST

ENVIRONMENTAL SAFETY

- Wear comfortable clothing and footwear (closed toed shoes, athletic shoes).
- Check that your exercise area is free of tripping hazards.
- Place a chair in your exercise area for rest breaks.
- Place your medical equipment (blood pressure cuff and pulse oximeter) under your chair.
- Place your exercise equipment in the room for easy access.
- Have a water bottle nearby for hydration during the session.

PERSONAL SAFETY

- Have your phone near you in case of technology issues or need for medical assistance.
- Take any medications as prescribed.
- If applicable, adjust supplementary oxygen to your prescribed levels for rest and activity. **Note:** If you use supplementary oxygen, clip your oxygen tubing behind you.
- Use your prescribed assistive devices during the session.
- Let a friend/family member know that you are exercising today.

Version Date: 02/04/2021

Safety

- ▶ Safety plan activation
 - ▶ Based on provider's concern
 - ▶ Varying levels of responses: remote monitoring (e.g., VS, obs), contact local emergency contact, activating emergency services
 - ▶ Not necessarily adverse event
- ▶ Incidence of safety plan protocol activation
 - ▶ 1% (n=3) individual video sessions (317 sessions)
 - ▶ 6% (n=7) group video sessions (122 sessions)
- ▶ Adverse events
 - ▶ n=1 (0.03%) individual sessions
 - ▶ n=3 (2%) group sessions



<https://www.safetytalkideas.com/>accessed 2/22/22.

Technology

- ▶ Connections
 - ▶ Freezing
 - ▶ Failing to connect
 - ▶ Dropped connections
- ▶ Common barriers
 - ▶ Set up
 - ▶ Hearing and vision limitations



<https://www.pinterest.com/pin/736760820270700872/>

Technology

- ▶ “Sometimes pane freezes, can’t hear it well, audio would cut out, couldn’t log in all together a couple times; causes you to lose track during the workout and it doesn’t flow well.”
- ▶ “When I can get it on regularly it helps me exercise – but if I can’t get on it’s very aggravating to me – sometimes the rain has to do with it. Although, I’m not a computer person. If I continue to have problems I just won’t do it anymore.”

Future Directions

- ▶ Overcoming technological barriers
- ▶ Optimal group size for safety & technology
- ▶ Understanding preferences – video group telehealth exercise is not for everyone
- ▶ Improving social connection

Promoting Exercise: Physical Activity Recommendations

- ▶ Move more, sit less. Some activity is better than none.
- ▶ ≥ 150 -300 min/week of moderate intensity or 75-150 min/week of vigorous intensity aerobic activity
- ▶ Muscle strengthening activities moderate or greater intensity involving all muscle groups ≥ 2 days/week



Promoting Exercise: Physical Activity Recommendations



Key Guidelines for Older Adults

The key guidelines for adults also apply to older adults. In addition, the following key guidelines are just for older adults:

- As part of their weekly physical activity, older adults should do multicomponent physical activity that includes **balance training** as well as aerobic and muscle-strengthening activities.
- Older adults should determine their level of effort for physical activity relative to their level of fitness.
- Older adults with chronic conditions should understand whether and how their conditions affect their ability to do regular physical activity safely.
- When older adults cannot do 150 minutes of moderate-intensity aerobic activity a week because of chronic conditions, they should be as physically active as their abilities and conditions allow.

Promoting Exercise: Suggestions

Activity	Team Member
Make physical activity a vital sign at each visit	Health care professional or clinic staff
Ask if patient exercises regularly or engages in physical activity; if yes, ask what type, for how many minutes, and how often; if not ask if patient is willing to start	Health care professional or clinic staff
Associate physical activity with reduced risk of heart disease, stroke diabetes, and many cancers	Health care professional
Write a prescription for agreed-upon daily physical activity, working up to at least 30 minutes of walking or other moderate-intensity activity daily	Health care professional
Encourage use of pedometer and advise record keeping of daily activity (mobile device, paper, pencil, internet, or other)	Health care professional or clinic staff
Recognize success and encourage reluctant adopters	Health care professional or clinic staff

Promoting Exercise: Suggestions

Activity	Team Member
Make physical activity a vital sign at each visit	Health care professional or clinic staff
Ask if patient exercises; if yes, ask what type of exercise; if no, ask if patient is able to exercise	Health care professional or clinic staff
Associate physical activity with stroke dialysis	Health care professional or clinic staff
Write a prescription for walking up stairs; specify intensity and duration	Health care professional or clinic staff
Encourage use of walking aids for physical activity (mobile phone, etc.)	Health care professional or clinic staff
Recognize success and encourage continued activity	Health care professional or clinic staff

What Matters?



The diagram illustrates the 4Ms Framework. At the center is a grey circle labeled "4Ms Framework". Surrounding it are three colored circles: a yellow circle at the top labeled "What Matters" with an icon of two people, an orange circle on the left labeled "Mobility" with a person walking icon, and a green circle on the right labeled "Medication" with a pill and bottle icon. Below the central circle is a blue circle labeled "Mentation" with an icon of a person reading. The logo for "Age-Friendly Health Systems" is at the bottom left of the diagram.

<http://www.ihl.org/>

Exercise Resources for Veterans

- [Sit and Be Fit](#) (Broadcast TV, online exercise videos, streaming (for a fee))
- [SilverSneakers](#) (Free through select Medicare plans, online/in-gym)
- [Silver & Fit](#) (Free through select Medicare plans, online/in-gym)
- [Arthritis Foundation](#) (Online exercise videos)
- [NIH/NIA Go4Life](#) (Online exercise videos)
- [NIH/NIA MedlinePlus](#) (Exercise resources)
- [Move!](#)
- [Gerofit](#) (Online exercise videos)



What is Gerofit?



- ▶ Supervised exercise program for older adults
- ▶ Started in 1986 by Miriam Morey, PhD at the Durham VA
- ▶ Participants (≥ 65 years) referred by PCP
 - ▶ Meets 3 times weekly
 - ▶ Aerobic, resistance, flexibility, balance
- ▶ Individual exercise prescription
- ▶ Ongoing, rolling enrollment
- ▶ No cost to Veteran!
- ▶ Tele-delivered at 30 sites + National classes



Gerofit Telehealth Measures

- ▶ Upper body strength (Arm Curl)
- ▶ Lower body strength (Chair Stand)
- ▶ Endurance (2 min step test)



Gerofit progress

- ▶ Visits to Gerofit are logged in CPRS
- ▶ Provider notification of performance testing at:
 - ▶ Program initiation
 - ▶ 3 mos
 - ▶ 6 mos
 - ▶ 12 mos
 - ▶ Annually after 12 mos
- ▶ Updates



Who is eligible?

▶ SIGN ME UP!!!

- ▶ Age \geq 65 years
- ▶ Able to perform ADLs

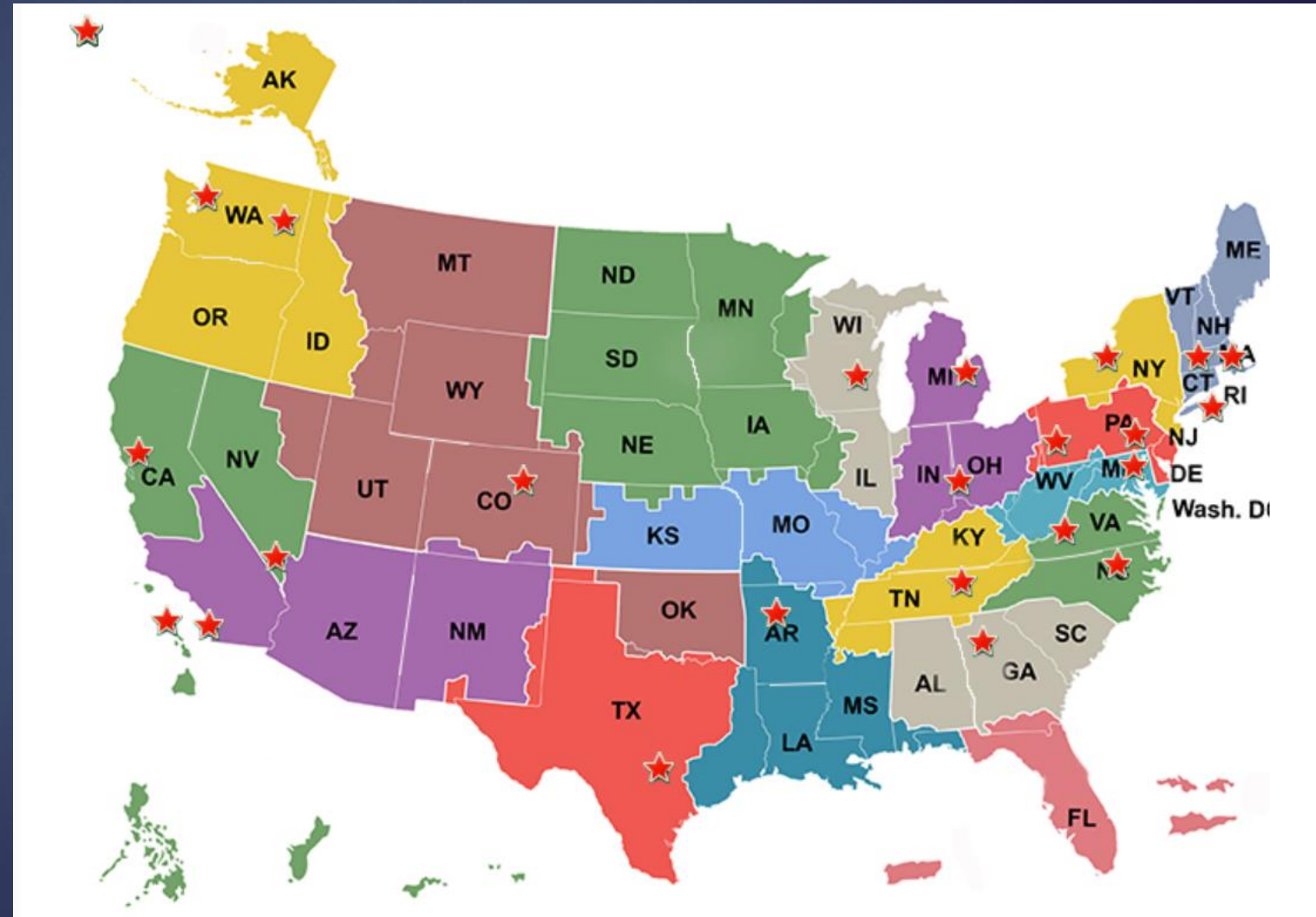


▶ Ineligible at this time:

- ▶ Oxygen dependent
- ▶ Unstable angina
- ▶ Proliferative diabetic retinopathy
- ▶ Volatile behavior issue/unable to work in group environment
- ▶ Uncontrolled Incontinence
- ▶ Active substance abuse or homelessness

How do I refer a patient?

- ▶ 30 VA Gerofit sites
- ▶ vhadurgerofit2@va.gov



Gerofit Resources: YouTube Videos



<https://www.youtube.com/watch?v=bZDX7FMqt7U>

Clinical Case: Veteran M

- ▶ How do you think Gerofit has impacted your health?
- ▶ “Before I joined the program, I have had falls, but I haven’t had any since I’ve joined the program. Turning around...and the things we do for stability...it helps.”
- ▶ “I am more energetic...even though I’m using the walker or the cane...I move quicker. I’m not dragging.”

Questions?

