Telehealth Delivered Exercise for Older Adults

LAUREN M. ABBATE, MD, PHD
EASTERN COLORADO GERIATRIC RESEARCH EDUCATION AND CLINICAL CENTER
Objectives

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

https://loinc.org/62818-0/#image-4/
Clinical Case: Veteran M

- Baseline assessment (9/29/21)

<table>
<thead>
<tr>
<th>Test</th>
<th>What it Measures</th>
<th>Ranking &amp; Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm curls</td>
<td>Upper body strength</td>
<td>AT RISK &lt;5%</td>
</tr>
<tr>
<td>Chair stands</td>
<td>Leg strength</td>
<td>BELOW AVERAGE 15%</td>
</tr>
<tr>
<td>2-Minute step</td>
<td>Endurance</td>
<td>AT RISK &lt;5%</td>
</tr>
</tbody>
</table>

- Normative values based on age and sex

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)

<table>
<thead>
<tr>
<th>TEST</th>
<th>WHAT IT MEASURES</th>
<th>RANKING &amp; PERCENTILE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm curls</td>
<td>Upper body strength</td>
<td>AT RISK &lt;5%</td>
</tr>
<tr>
<td>Chair stands</td>
<td>Leg strength...........</td>
<td>BELOW AVERAGE 15%</td>
</tr>
<tr>
<td>2-Minute step</td>
<td>Endurance...............</td>
<td>AT RISK &lt;5%</td>
</tr>
</tbody>
</table>

- 3-month assessment (1/11/22)

<table>
<thead>
<tr>
<th>TEST</th>
<th>WHAT IT MEASURES</th>
<th>RANKING &amp; PERCENTILE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm curls</td>
<td>Upper body strength</td>
<td>AVERAGE 35%</td>
</tr>
<tr>
<td>Chair stands</td>
<td>Leg strength...........</td>
<td>AVERAGE 30%</td>
</tr>
<tr>
<td>2-Minute step</td>
<td>Endurance...............</td>
<td>AVERAGE 25%</td>
</tr>
</tbody>
</table>

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

https://www.lifetimearts.org/blog/2020/04/27/greenwich-house-brings-classes-online-launches-virtual-art-show/
https://health.usnews.com/health-news/health-wellness/articles/best-equipment-free-strength-exercises-for-older-adults
https://store.oasiseverywhere.org/product/exercise-for-everyday-life-36/
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

Feasibility and Acceptability

- Older adults enjoy this format\(^1\)
  - “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.”

\(^{1}\)National 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

Supervised pulmonary tele-rehabilitation versus pulmonary rehabilitation in severe COPD: a randomised multicentre trial
Henrik Hansen, Theresa Bieler, Nina Beyer, Thomas Kallemose, Jon Torgny Wilcke, Lisbeth Marie Østergaard, Helle Frost Andeassen, Gerd Martinez, Marie Lavesen, Anne Frølich, Nina Skavlav Godtfredsen

Home-based telerehabilitation is not inferior to a centre-based program in patients with chronic heart failure: a randomised trial
Rita Hwang, Janet Bruning, Norman R. Morris, Allison Mandrusiak, Trevor Russell

The Feasibility of Remotely Delivered Exercise Session in Adults with Alzheimer Disease and their Caregivers
Lauren T Ptoomey, Eric D Vidoni, Esteban Montenegro-Montenegro, Michael A Thompson, Joseph R Sherman, Anna M Gorczyca, J. Greene, Richard A Washburn, and Joseph E Donnelly

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

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)

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


Technology

- Connections
  - Freezing
  - Failing to connect
  - Dropped connections

- Common barriers
  - Set up
  - Hearing and vision limitations

https://www.pinterest.com/pin/736760820270700872/
“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.”

¹National Gerofit telehealth transition survey, unpublished data.
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

US Dept HHS Physical Activity Guidelines for Americans, 2nd Ed. 2018
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

<table>
<thead>
<tr>
<th>Activity</th>
<th>Team Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make physical activity a vital sign at each visit</td>
<td>Health care professional or clinic staff</td>
</tr>
<tr>
<td>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</td>
<td>Health care professional or clinic staff</td>
</tr>
<tr>
<td>Associate physical activity with reduced risk of heart disease, stroke diabetes, and many cancers</td>
<td>Health care professional</td>
</tr>
<tr>
<td>Write a prescription for agreed-upon daily physical activity, working up to at least 30 minutes of walking or other moderate-intensity activity daily</td>
<td>Health care professional</td>
</tr>
<tr>
<td>Encourage use of pedometer and advise record keeping of daily activity (mobile device, paper, pencil, internet, or other)</td>
<td>Health care professional or clinic staff</td>
</tr>
<tr>
<td>Recognize success and encourage reluctant adopters</td>
<td>Health care professional or clinic staff</td>
</tr>
</tbody>
</table>

Berra K et al. 2015 JAMA
Promoting Exercise: Suggestions

<table>
<thead>
<tr>
<th>Activity</th>
<th>Team Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make physical activity a vital sign at each visit</td>
<td>Health care professional or clinic staff</td>
</tr>
<tr>
<td>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</td>
<td>Health care professional or clinic staff</td>
</tr>
<tr>
<td>Associate physical activity with reduced risk of heart disease, stroke, diabetes, and many cancers</td>
<td>Health care professional</td>
</tr>
<tr>
<td>Write a prescription for agreed-upon daily physical activity, working up to at least 30 minutes of walking or other moderate-intensity activity</td>
<td>Health care professional</td>
</tr>
<tr>
<td>Encourage use of pedometer and advise record keeping of daily activity (mobile device, paper, pencil, internet, or other)</td>
<td>Health care professional or clinic staff</td>
</tr>
<tr>
<td>Recognize success and encourage reluctant adopters</td>
<td>Health care professional or clinic staff</td>
</tr>
</tbody>
</table>

What Matters?

http://www.ihi.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 ≥ 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?