Development and implementation of Bingocize® - an evidence-based interprofessional program

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INTRODUCTIONS

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College of Health & Human Services

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WHY AGING, WHY NOW?

- By the year 2030, one in five Americans will be over age 65 and by 2035 will outnumber children.
- Top causes of death in Kentucky include:
  - Cancer
  - Heart disease
  - Respiratory disease
  - Stroke
  - Alzheimer’s disease

- As a student-centered applied research university with strong connections to the region, WKU has increased its focus on aging science and clinical preparation for nursing home settings.
By 2050, 21% of U.S. population will be over age 65+
Figure 2.1.
Percentage of Population Aged 65 and Over: 2015 and 2050

What causes the most death and disability combined?

- Communicable, maternal, neonatal, and nutritional diseases
- Non-communicable diseases
- Injuries

Top 10 causes of disability-adjusted life years (DALYs) in 2016 and percent change, 2005-2016, all ages, number
CONTINUUM OF AGING
Modifiable Risk Factors & Dementia

- The *Lancet* Commission (2017) on dementia recently concluded that up to 35% of all cases may be attributable to nine potentially modifiable risk factors including education, hypertension, obesity, hearing loss, smoking, depression, physical inactivity, social isolation, and diabetes.
Proposed Mechanisms Underlying Cognitive Decline with Aging

**Biomarkers**
- Inflammation ↑
- Growth factors ↓
- Cardiometabolic risk ↑
- Oxidative Stress ↑
- Genetic risk

**Physiological Factors**
- Cerebrovascular reserve ↓
- Cerebral blood flow ↓
- Brain volume ↓
- Hippocampal volume ↓
- Physical inactivity

**Psychological and Lifestyle Factors**
- Mood changes
- Sleep ↓
- Cognitive inactivity
- Diet
- Smoking and alcohol use

**Factors Associated with Physical Activity**
(Aherence, Dose, Type, Social Support)

**Biomarkers**
- Inflammation ↓
- Growth factors ↑
- Cardiometabolic risk ↓
- Oxidative Stress ↓
- Epigenetic changes

**Physiological Factors**
- Cerebrovascular reserve ↑
- Hippocampal volume ↑
- VO2max ↑
- BMI, body fat %, WHR changes
- Muscular strength ↑

**Psychological and Lifestyle Factors**
- Mood changes
- Sleep ↑
- Executive function ↑
- Attention ↑
- Memory ↑

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Source: Exerc Sport Sci Rev © 2018 American College of Sports Medicine
Research Background: Communication and Socialization in Nursing Home Populations

- The social needs of nursing home (NH) residents with dementia are often ignored even though they are capable of expressing their emotions and responding in social interactions.

- Insufficient social engagement in this population is known to be associated with low quality of life as well as many negative health outcomes, such as mortality, agitation, and functional decline.

- Kang et al. 2012 Asian Nursing Research 6,75-81.
What is Bingocize®?
A BRIEF HISTORY OF HOW WE GOT TO THIS POINT

- For the past several years we’ve been developing and investigating the health benefits of Bingocize® - a health-promoting intervention designed to improve physical and mental fitness in older adults.

- Our work has:
  - Involved dozens of regional and national aging-related organizations, non-profits, and companies
  - Built collaborations with other academic institutions in the U.S. and internationally
  - Involved dozens of undergraduate and master’s students in hands-on, experiential learning and scientific research
  - Resulted in publications and conference presentations, most with student co-authors
  - Resulted in license agreements, sales of Bingocize equipment, and online training in 10 states
  - Successfully acquired external grants totaling over $1.5 million dollars, from multiple entities, such as:
<table>
<thead>
<tr>
<th></th>
<th>Bingocize®</th>
<th>Matter of Balance</th>
<th>CDSMP</th>
<th>QOLSRI/CP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise</td>
<td>+</td>
<td>+</td>
<td>+/-</td>
<td>-</td>
</tr>
<tr>
<td>Communication Strategies</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Socialization</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Student Involvement</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
**ORIGINAL BINGOCIZE®**

- Participants seated
- Equipment ready
- Warm-up
- Bingo rolls
- Exercises
- Cool down

### BINGOCIZE SESSIONS

<table>
<thead>
<tr>
<th>Session 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bingo rolls (3)</strong></td>
</tr>
<tr>
<td>Sets</td>
</tr>
<tr>
<td>Head Turns Seated</td>
</tr>
<tr>
<td>Calf Stretch Seated</td>
</tr>
<tr>
<td>Mermaid Seated</td>
</tr>
<tr>
<td>Round and release</td>
</tr>
<tr>
<td><strong>Bingo Rolls (3)</strong></td>
</tr>
<tr>
<td>Leg extension Seated</td>
</tr>
<tr>
<td>Reverse Fly Seated</td>
</tr>
<tr>
<td><strong>Bingo Rolls (3)</strong></td>
</tr>
<tr>
<td>Hip Raises Seated</td>
</tr>
<tr>
<td>Seated Balance Exercises</td>
</tr>
<tr>
<td><strong>Bingo Rolls (3)</strong></td>
</tr>
<tr>
<td>March Seated</td>
</tr>
<tr>
<td>Side Steps Seated</td>
</tr>
<tr>
<td><strong>Bingo Rolls (3)</strong></td>
</tr>
<tr>
<td>Thumb to Fingers</td>
</tr>
<tr>
<td>Table Roll</td>
</tr>
<tr>
<td><strong>Bingo Rolls (3)</strong></td>
</tr>
<tr>
<td>Trunk Rotation Seated</td>
</tr>
<tr>
<td>Breast Stroke Seated</td>
</tr>
<tr>
<td>Calf Stretch Seated</td>
</tr>
<tr>
<td>Head Turns Seated</td>
</tr>
<tr>
<td><strong>Bingo Rolls (3) or until winner</strong></td>
</tr>
</tbody>
</table>
Exercises
Rewards for Winning the Game
FUN AND ENGAGEMENT SCALE (FUSE)™

**Fun and Social Engagement Evaluation (FUSE)™**

**Date:** [ ]

**Facility:** [ ]

**Participant ID:** [ ]

1. Were residents present during this BingoCozies® session? Yes [ ] No [ ]

2. Please circle one based on who administered the FUSE to this participant:
   - [ ] Resident
   - [ ] Staff member
   - [ ] Faculty

3. Please check the boxes below that you observe at least once during the BingoCozies® session.

   - [ ] Participated in Bingo
   - [ ] Participated in exercise
   - [ ] Laughed
   - [ ] Smoked
   - [ ] Helped or another resident
   - [ ] Talked to another resident
   - [ ] Talked to staff member
   - [ ] Total # of positive bases checked: [ ]

   - [ ] Made negative comments
   - [ ] Pushed away activity materials
   - [ ] Refused
   - [ ] Cried
   - [ ] Did or attempted to things other than games activity (e.g. napping)
   - [ ] Asked or attempted to leave
   - [ ] Sleeping
   - [ ] Total # of negative bases checked: [ ]

   - [ ] Other:

**PLEASE ADMINISTER 4-20 MINUTES AFTER THE BINGOCOZIES® SESSION BEGINS.**

4. Show the participant the male or female face according to the same gender as the resident participant. Ask the participant: "Do you feel happy or sad? Point to the picture." Circle the correct choice based on the participant’s response:

   - [ ] Happy
   - [ ] Sad
   - [ ] Other

5. If other, please write or circle the specific response:
   - [ ] Sleeping or Eyes Closed
   - [ ] Relaxed
   - [ ] Left Session
   - [ ] Did not understand the question
   - [ ] Provided other response (e.g. sick)

**For researchers only:**

- Total: [ ]
- Total: [ ]
- [ ] + [ ] = [ ]
- [ ] + [ ] = [ ]
- [ ] = [ ]
- [ ] = [ ]

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➢ Evidence-based multi-component exercise and education program
➢ Strategically incorporating bingo
➢ Addresses common barriers
  ➢ Fear, Lack of Guidance, Not enjoyable
➢ Focuses on benefits of physical activity
  ➢ Cardiovascular, flexibility, balance, muscle strengthening/power
  ➢ Socialization
  ➢ Intergenerational relationships
➢ Cognition
2 VERSIONS

Offline

Mobile App
NATIONAL DISSEMINATION...

- Meets highest level criteria for evidence-based program by U.S. Administration on Aging
- > 80 older adult facilities use program
- Assisted living, senior centers, memory care, independent living, CNF
FUNCTIONAL PERFORMANCE


Also see:


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**Table 4. Results of paired-sample T-tests.**

<table>
<thead>
<tr>
<th>Pair</th>
<th>Test</th>
<th>Mean</th>
<th>SD</th>
<th>SEM</th>
<th>95% CI LL</th>
<th>95% CI UL</th>
<th>t</th>
<th>df</th>
<th>Cohen's d</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BMI</td>
<td>-0.21</td>
<td>1.37</td>
<td>0.33</td>
<td>-0.50</td>
<td>0.91</td>
<td>0.62</td>
<td>16</td>
<td>-0.05</td>
<td>.543</td>
</tr>
<tr>
<td>2</td>
<td>BW</td>
<td>-0.93</td>
<td>4.54</td>
<td>1.10</td>
<td>-1.41</td>
<td>3.27</td>
<td>0.84</td>
<td>16</td>
<td>-0.04</td>
<td>.411</td>
</tr>
<tr>
<td>3</td>
<td>Back scratch</td>
<td>1.22</td>
<td>1.49</td>
<td>0.37</td>
<td>0.42</td>
<td>2.01</td>
<td>3.26</td>
<td>15</td>
<td>0.63</td>
<td>.005*</td>
</tr>
<tr>
<td>4</td>
<td>8 Foot Up and Go</td>
<td>-0.65</td>
<td>0.79</td>
<td>0.20</td>
<td>-1.09</td>
<td>-0.21</td>
<td>-3.18</td>
<td>14</td>
<td>-0.10</td>
<td>.007*</td>
</tr>
<tr>
<td>5</td>
<td>Sit and reach</td>
<td>3.47</td>
<td>5.45</td>
<td>1.32</td>
<td>0.67</td>
<td>6.27</td>
<td>2.63</td>
<td>16</td>
<td>0.95</td>
<td>.018*</td>
</tr>
<tr>
<td>6</td>
<td>Arm curl</td>
<td>2.29</td>
<td>3.04</td>
<td>0.74</td>
<td>0.73</td>
<td>3.86</td>
<td>3.12</td>
<td>16</td>
<td>0.63</td>
<td>.007*</td>
</tr>
<tr>
<td>7</td>
<td>Chair stand</td>
<td>1.69</td>
<td>2.47</td>
<td>0.62</td>
<td>0.37</td>
<td>3.00</td>
<td>2.73</td>
<td>16</td>
<td>0.56</td>
<td>.015*</td>
</tr>
<tr>
<td>8</td>
<td>Step test</td>
<td>17.13</td>
<td>27.94</td>
<td>7.21</td>
<td>1.66</td>
<td>32.61</td>
<td>2.38</td>
<td>14</td>
<td>0.61</td>
<td>.032*</td>
</tr>
</tbody>
</table>

Note: * = p < .05, two-tailed. LL = Lower limit. UL = Upper limit. BMI = body mass index. BW = Body Weight.
RESEARCH

HEALTH KNOWLEDGE


<table>
<thead>
<tr>
<th></th>
<th>Experimenta l M, SD</th>
<th>95% CI</th>
<th>Control M, SD</th>
<th>95% CI</th>
<th>P-value</th>
<th>η²p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health education knowledge; (%)</td>
<td>68.29 (11.90)</td>
<td>[58.33, 78.24]</td>
<td>35.50 (11.12)</td>
<td>[22.39, 48.67]</td>
<td>.014</td>
<td>.505</td>
</tr>
<tr>
<td>Body weight, (kgs)</td>
<td>84.22 (16.77)</td>
<td>[71.17, 97.28]</td>
<td>85.20 (11.68)</td>
<td>[67.93, 102.47]</td>
<td>.522</td>
<td>.047</td>
</tr>
<tr>
<td>Resting systolic BP; (mmHg)</td>
<td>131.43 (10.69)</td>
<td>[118.41, 144.45]</td>
<td>140 (21.60)</td>
<td>[122.78, 157.22]</td>
<td>.854</td>
<td>.004</td>
</tr>
<tr>
<td>Resting diastolic BP; (mmHg)</td>
<td>88.57 (14.35)</td>
<td>[71.23, 105.92]</td>
<td>93.75 (28.69)</td>
<td>[70.80, 116.70]</td>
<td>.470</td>
<td>.060</td>
</tr>
<tr>
<td>SPPB score</td>
<td>7.43 (2.44)</td>
<td>[5.33, 9.53]</td>
<td>5.75 (2.50)</td>
<td>[2.97, 8.53]</td>
<td>.032</td>
<td>.416</td>
</tr>
<tr>
<td>Gait velocity, seconds</td>
<td>10.93 (3.52)</td>
<td>[7.64, 14.21]</td>
<td>13.20 (4.43)</td>
<td>[8.86, 17.55]</td>
<td>.037</td>
<td>.400</td>
</tr>
<tr>
<td>Arm curls, repetitions</td>
<td>18.14 (3.34)</td>
<td>[15.60, 20.69]</td>
<td>17.25 (2.06)</td>
<td>[13.89, 20.61]</td>
<td>.211</td>
<td>.168</td>
</tr>
</tbody>
</table>
### Table 4. Means (and Standard Errors) for Outcome Measures Among Completed Participants

<table>
<thead>
<tr>
<th>Outcome measures</th>
<th>Units</th>
<th>Range</th>
<th>Pre</th>
<th>Post</th>
<th>+/-</th>
<th>Pre</th>
<th>Post</th>
<th>+/-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive tasks (examiner battery)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phonemic Fluency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category Fluency&lt;sup&gt;a&lt;/sup&gt;</td>
<td>N correct</td>
<td>3–26</td>
<td>9.46 (0.57)</td>
<td>9.35 (0.63)</td>
<td>-0.11</td>
<td>8.78 (0.63)</td>
<td>9.78 (0.70)</td>
<td>+1.00</td>
</tr>
<tr>
<td>Flanker (inhibition)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>N correct</td>
<td>4–26</td>
<td>14.89 (0.67)</td>
<td>11.83 (0.49)</td>
<td>-3.06</td>
<td>14.68 (0.75)</td>
<td>11.68 (0.55)</td>
<td>-3.00</td>
</tr>
<tr>
<td>Set Shifting (shifting)&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
<td>3.06–8.73</td>
<td>6.92 (0.14)</td>
<td>7.05 (0.18)</td>
<td>+0.13</td>
<td>6.58 (0.14)</td>
<td>6.87 (0.20)</td>
<td>+0.29</td>
</tr>
<tr>
<td>Dot Counting (updating)&lt;sup&gt;c&lt;/sup&gt;</td>
<td>N correct</td>
<td>3–26</td>
<td>11.78 (0.62)</td>
<td>13.40 (0.64)</td>
<td>+1.62</td>
<td>11.25 (0.69)</td>
<td>10.61 (0.72)</td>
<td>-0.64</td>
</tr>
<tr>
<td>Antisaccade (inhibition)&lt;sup&gt;d&lt;/sup&gt;</td>
<td>N correct</td>
<td>2–20</td>
<td>14.83 (0.62)</td>
<td>15.88 (0.50)</td>
<td>+1.05</td>
<td>13.63 (0.66)</td>
<td>15.35 (0.53)</td>
<td>+1.72</td>
</tr>
<tr>
<td>Physical tasks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Side-by-Side Stand</td>
<td></td>
<td>0–1</td>
<td>0.96 (0.02)</td>
<td>0.98 (0.02)</td>
<td>+0.02</td>
<td>1.00 (0.03)</td>
<td>1.00 (0.02)</td>
<td>0.00</td>
</tr>
<tr>
<td>Semi-tandem</td>
<td></td>
<td>0–1</td>
<td>0.94 (0.03)</td>
<td>0.94 (0.03)</td>
<td>0.00</td>
<td>1.00 (0.03)</td>
<td>0.97 (0.04)</td>
<td>-0.03</td>
</tr>
<tr>
<td>Tandem</td>
<td></td>
<td>0–2</td>
<td>1.72 (0.10)</td>
<td>1.72 (0.09)</td>
<td>0.00</td>
<td>1.47 (0.11)</td>
<td>1.74 (0.10)</td>
<td>+0.27</td>
</tr>
<tr>
<td>4 Meter Walk&lt;sup&gt;e&lt;/sup&gt;</td>
<td>Seconds</td>
<td>2.34–11.43</td>
<td>4.44 (0.19)</td>
<td>4.05 (0.21)</td>
<td>-0.39</td>
<td>4.68 (0.22)</td>
<td>4.36 (0.23)</td>
<td>-0.32</td>
</tr>
<tr>
<td>Repeated Chair Stands&lt;sup&gt;ec&lt;/sup&gt;</td>
<td>Seconds</td>
<td>5.53–26.56</td>
<td>13.93 (0.70)</td>
<td>11.44 (0.58)</td>
<td>-2.49</td>
<td>13.45 (0.79)</td>
<td>12.78 (0.65)</td>
<td>-0.67</td>
</tr>
<tr>
<td>Arm Curls&lt;sup&gt;d&lt;/sup&gt;</td>
<td></td>
<td>6–50</td>
<td>15.57 (0.61)</td>
<td>19.98 (0.81)</td>
<td>+4.41</td>
<td>15.68 (0.68)</td>
<td>16.41 (0.91)</td>
<td>+0.73</td>
</tr>
<tr>
<td>Health Knowledge Test&lt;sup&gt;g&lt;/sup&gt;</td>
<td></td>
<td>10–30</td>
<td>18.72 (0.51)</td>
<td>23.62 (0.50)</td>
<td>+4.90</td>
<td>18.00 (0.57)</td>
<td>23.29 (0.56)</td>
<td>+5.29</td>
</tr>
</tbody>
</table>

<sup>a</sup> Significant Time (pre vs. post +/-) effect.
<sup>b</sup> Composite score of speed and accuracy (see Ref. 77).
<sup>c</sup> Significant interaction (i.e., differential pre/post +/- as a function of group).
<sup>d</sup> Points based on number of seconds maintaining balance in each position.
<sup>e</sup> Lower numbers/deciles are considered improvements.

### RESEARCH

**MULTIMODAL (COGNITION, FUNCTIONAL PERFORMANCE, & HEALTH KNOWLEDGE)**


https://doi.org/10.1089/g4h.2017.0139

1. Adherence (number of sessions attended) to the program 93-97%
2. Lower body strength- increased 18%
3. Upper body strength- increased 22%
4. Updating (measure of cognition) increased 13.77%
5. Knowledge of falls prevention and osteoarthritis- increased 26%
6. Patient Activation (measure of patient’s active engagement in their own healthcare) - increased 7%
GAIT PERFORMANCE


SOCIAL ENGAGEMENT


SOCIAL SUPPORT


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**Table 4. Group velocity changes**

<table>
<thead>
<tr>
<th>Condition assignment</th>
<th>Velocity, cm/s Baseline</th>
<th>Velocity, cm/s Post</th>
<th>Percent change</th>
<th>Velocity, cm/s Baseline</th>
<th>Velocity, cm/s Post</th>
<th>Percent change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental (n = 200)</td>
<td>103.99</td>
<td>108.42</td>
<td>4.06</td>
<td>122.22</td>
<td>128.01</td>
<td>5.25</td>
</tr>
<tr>
<td>Std. deviation</td>
<td>23.65</td>
<td>28.00</td>
<td></td>
<td>29.55</td>
<td>33.07</td>
<td></td>
</tr>
<tr>
<td>Minimum</td>
<td>70.30</td>
<td>69.10</td>
<td></td>
<td>76.60</td>
<td>71.60</td>
<td></td>
</tr>
<tr>
<td>Maximum</td>
<td>152.50</td>
<td>149.10</td>
<td></td>
<td>181.60</td>
<td>172.40</td>
<td></td>
</tr>
<tr>
<td>Control (n = 180)</td>
<td>99.71</td>
<td>97.09</td>
<td>-2.62</td>
<td>128.73</td>
<td>121.21</td>
<td>-5.84</td>
</tr>
<tr>
<td>Std. deviation</td>
<td>10.93</td>
<td>20.34</td>
<td></td>
<td>24.48</td>
<td>25.52</td>
<td></td>
</tr>
<tr>
<td>Minimum</td>
<td>72.10</td>
<td>50.20</td>
<td></td>
<td>68.70</td>
<td>68.40</td>
<td></td>
</tr>
<tr>
<td>Maximum</td>
<td>131.00</td>
<td>130.50</td>
<td></td>
<td>176.40</td>
<td>155.50</td>
<td></td>
</tr>
</tbody>
</table>

Note: Baseline, pre-intervention assessment; Post, post-intervention assessment.

* SS walking pace.
"Faster walking pace.

- "I see people I know, the ones I didn’t know I know now.
- "I enjoy going every Thursday."
- "It’s fun!
- "I feel better physically and mentally.
- "The doctor told me I needed to exercise."
- "If you don’t use it, you lose it.
- "I walk more, and exercise in my room."
- "Now I’ve gotten into a (exercise) routine.
- "I know I can do these exercises."
- "I walk more, and do exercises in my room now."
- "The girls from Western (students) are so nice.
- "You get to see the girls from Western (students)."
**STUDENT ENGAGEMENT**


*Figure 1. Number of positive, mixed, and negative student observations by time of semester.*
Civil Money Penalty Grant

- 3 years: April 2017 – April 2020
- $898,945.00
- Bingocize® in 28 Kentucky nursing homes
- Partnerships with faculty and students at 9 universities
- Objectives:
  - Train 350 CNF staff and 200 students,
  - Impact 1200 nursing home residents
PARTICIPATING UNIVERSITIES & CNF

- 26 CNF sites currently participating
- 19 CNF sites interested
- 12 Kentucky counties
- 10 University partners

- University Partners
- Current CNF Partners
- Interested CNF
Welcome to Bingocize®

Bingocize®, started in 2011, is a proven health promotion program to maintain and improve quality of life in a variety of populations. Bingocize® strategically integrates exercise and health education into a fun game of bingo regardless of participants' background, physical, or intellectual abilities.

Bingocize® is currently implemented in more than 100 senior living facilities across the entire US. The focus of the program is to help reduce falls and engage older adults dealing with dementia and other cognitive disorders.

We received multiple grant awards from organizations dedicated to improving the quality of care delivered to individuals living in senior living communities including the Kentucky, Science and Engineering Foundation, the Retiree Research Foundation, and the US Department for Health and Human Services. Our research has confirmed the following benefits of the program:

- Improved gait
- Improved lower and upper body muscle strength
- Social engagement
- Health knowledge
- Player engagement
Aging & Physical Activity

One of the main goals of the Bingocize® program is to encourage increased physical activity in our aging populations. The level of physical activity has a direct impact on the aging process. Therefore, increasing physical activity is very important.

In this section, we explore this relationship through the following topics:

- The Importance of Physical Activity
- Barriers to Physical Activity
- Motivating Older Adults

Click on a topic to get started. A checkmark will appear after you’ve finished the topic.

You may go straight to the quiz if you think you’re ready, or click the topics above to review the content.

Age & Physical Activity Quiz
Leading & Assessing a Bingocize® Session

You have your participants and volunteers. You know which room you'll be in, but how do you lead a Bingocize® session? You'll find out in this section.

Before you begin, take a quick look at a session, before we break down the steps and special considerations!

Click the Play button on the image to play the video.

You may go straight to the quiz if you think you're ready or review the content first.

Leading & Assessing a Session Quiz
Physical Space Requirements

Physical Space Requirements:

• Choose a room that allows for adequate room to move around
• Choose a room where you can control the temperature
• Use sturdy chairs without wheels
• Ensure Emergency Procedures are in place and handy for those on site
• Ensure someone has appropriate safety/CPR training
The Exercises

While bingo is an important part of Bingocize®, it's the exercises that make the program work. In this section, you'll learn some basic exercise guidelines and which exercises are recommended for the Bingocize® program.

Click on a section to get started. A checkmark will appear after you've finished the topic.

You may go straight to the quiz if you think you're ready, or click the topics above to review the content.
Warm Up Exercises – page 1

Click on an exercise icon to play the exercise demonstration video

- Arm Extensions
- Breast stroke
- Calf stretch with chair
- Cueing
- Head turns
- March in Place
- Mermaids
- Round and release

The Warm Up
CERTIFICATE OF COMPLETION

This acknowledges that

Kirtley, Steven

has successfully completed the

BINGOCIZE LEADERSHIP TRAINING

April 2017

K. Jason Crandall, Ph.D.
BINGOCIZE® IN A BOX
Evaluation: Number of Residents Participating

Bingocize® Participant Recruitment

<table>
<thead>
<tr>
<th>Month</th>
<th>Residents</th>
</tr>
</thead>
<tbody>
<tr>
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<td>255</td>
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<tr>
<td>Oct '17</td>
<td>325</td>
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<tr>
<td>Nov '17</td>
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<tr>
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<td>393</td>
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<tr>
<td>Aug '18</td>
<td>720</td>
</tr>
<tr>
<td>Sept '18</td>
<td>732</td>
</tr>
</tbody>
</table>
Evaluation: MDS 3.0

- J1800: Any Falls Since Last Assessment;
- J1900: Number of Falls Since Last Assessment;
- G0110: Activities of Daily Living (ADLs) Assistance;
  - Transfer
  - Walk in room
  - Walk in corridor
  - Locomotion on units
- G0300: Balance During Transitions and Walking;
  - Moving from a seated to standing position
  - Walking
  - Turning around and facing the opposite direction while walking
- B0700: Makes self-understood;
- D0300, D0600, E0200: Improved mood and behavior symptoms.
The average resident Bingocize® participant

- Female, 80.1 years old
- Has a “total severity score” of 2.14 (from 00 to 27) on the Resident Mood Interview
- Has a “total severity score” of 0.92 (from 00 to 30) on the Staff Assessment and Resident Mood Interview
- Does not (often) walk between locations in his or her room.
- Does not (often) walk in the corridor of the CNF.
- Requires “extensive support” (staff providing weight-bearing support) when moving between locations in his or her room and adjacent corridor located on the same floor.
- Is considered “not steady” and is only able to stabilize with staff assistance when moving from a seated to standing position, walking, and turning around and facing the opposite direction.
- Has not experienced a fall since admission/entry, reentry, or the prior assessment.
- Has a score of 10.32 (from 00 to 15, with 15 being desirable) on the Brief Interview for Mental Status.
Evaluation: Student Involvement

- Undergraduate Experience – Communication Sciences and Disorders
- Collaboration with other students from disciplines other than CSD
- Classroom knowledge utilized in real-world setting
- Found that it’s more than just a fitness program

Over 350 students from 10 disciplines have participated so far!!!
Current Project: A Randomized Control Trial (RCT) funded by NIH-NIA (2018-2021)

- 160+ independently living older adults attending senior centers throughout Kentucky & Tennessee
- Cluster randomization to one of four conditions, all using the Bingocize app on tablets:
  - Bingo + Exercise + Health Education (Fall Risks & Diet/Nutrition)
  - Bingo + Exercise
  - Bingo + Health Education (Fall Risks & Diet/Nutrition)
  - Bingo only
- Outcome Measures (assessed pre- and post-intervention)
  - Health demographics (BP, Weight, medications, etc.)
  - Functional performance (bodily strength, mobility, etc.)
  - Executive function (aspects of cognition involving attention regulation and control)
  - Diet/Nutritional intake
  - Fall Efficacy
  - Instrumental Activities of Daily Living (IADLs)
  - Knowledge of health topics (Fall Risks & Diet/Nutrition)
  - Other demographic data (socioeconomic status, education, etc.)
THANK YOU!

For more information please contact:

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References


http://doi.org/10.1111/j.1532-5415.2009.02489.x
Images
