



**Contact:** Kristeen Owens  
270-215-4800  
Kristeen@Bingocize.com

- **Website:** [www.bingocize.com](http://www.bingocize.com)
- **Program Synopsis:**

Bingocize® is an evidence-based health promotion program that strategically combines the game of bingo, health education, and/or exercise. Trained facilitators may select between separate 10-week workshops that focus on *exercise-only*, *exercise and falls prevention*, *exercise and nutrition*, or *range of motion exercise (appropriate for long-term care)*. Each workshop includes a facilitator’s script for each session, participants’ materials, and “take home” cards for participants to complete exercises and tasks at home to reinforce the weekly health education information. Participants (Bingocizers) *play* Bingocize® twice per week, with each 45-60 minute session consisting of exercises (range of motion, balance, muscle strengthening, and endurance exercises) and/or health education questions. Workshops can be delivered using a traditional in-person bingo game, along with printed curriculum facilitator and participants’ materials. However, facilitators and participants are recommended to use a stand-alone online web-based game, to play Bingocize® in-person or remotely. This adds a fun, interactive technology component to the original game. The program is currently translated into Spanish and Chinese with additional language translations available upon request.
- **Program goals:**
  - The overall goals of the program are to help older adults:
    - To increase physical activity to improve and/or maintain mobility and independence
    - To learn and use health information focused on falls reduction, nutrition, and other health-related behaviors
    - To socially engage with other older adults
- **Reasoning behind the program design and elements:**
  - A significant barrier to improving the health and well-being of sedentary older adults is getting them to adhere to an exercise-based health promotion program (Picorelli et al., 2014).
  - Older adults enjoy and are more likely to participate in programs that are game-centered, interactive, and socially engaging.
  - Multimodal interventions (targeting multiple aspects of physical and/or cognitive health, such as health education and exercise) are most likely to produce improvements (Park et al., 2011).
- **Target population**
  - The program targets sedentary older adults at all physical ability levels in a variety of settings including certified nursing facilities, assisted living, independent living, and community senior centers.

- **Essential program components and activities:**
  - Bingocizers complete a series of strategically inserted exercises designed to increase or decrease the intensity and volume of exercise. Health education questions are also inserted into the game. Participants rest while numbers are called for the bingo game, complete more strategically inserted exercises or health education questions, rest during number calling, and so on. This pattern continues until a Bingocizer wins the game. Small prizes are awarded to winners. Additional games are played until all planned exercises and/or health education questions are completed.
- **Length/Timeframe of program**
  - Participants play Bingocize® for one hour 2 times per week for 10 weeks OR
  - The program is even more beneficial if played on an ongoing basis.
- **Recommended class size:** 8-20; >20 requires two certified facilitators
- **Desired outcomes**
  - Improved lower/upper body strength, gait, balance, and range of motion,
  - Improved aspects of cognition (executive function),
  - Increased social engagement,
  - Improved knowledge of falls risk reduction, nutrition, and other important health topics, and
  - Improved patient activation,
  - Decreased fear of falling
  - Increased physical activity
- **Measures and evaluation activities**
  - Certified facilitators are required to track session attendance and administer an assessment to the participants before the first session and after the last session of the program. Attendance and completed pre/post assessment forms should be scanned and emailed to [jason@bingocize.com](mailto:jason@bingocize.com). All forms and outcome measure instructions are available on the online training website. Certified facilitators also complete an evaluation of the online training.
  - Program completers must attend 80% or 16 of the 20 sessions.
- **Health outcomes and evidence supporting health outcomes:**
  - Community-dwelling older adults (n= 481) attended Bingocize® group sessions twice per week for 10 weeks. Pre and post assessments gauged participants' self-perception of fear of falling, physical activity, social isolation, and avoidance behavior. Following the intervention, paired sample t-tests revealed statistically significant improvements ( $p < .05$ ) in:
    - fear of falling,  $t(364)=3.39, p<.001, ES=.178$
    - physical activity,  $t(341)=4.63, p<.001, ES=2.50$
    - social isolation,  $t(303)=2.185, p<.015, ES=.125$
    - avoidance behavior,  $t(345)=3.4, p<.001, ES=.184$
  - Community-dwelling physically inactive older adults (N=85) participated for approximately one hour, twice per week, for 10 weeks. They played in groups and were randomly assigned to either an experimental (Bingo + Health Education + Exercise; n =47) or control (Bingo + Health Education; n = 38) group.
    - Upper body strength improved for both groups,  $F(1, 81) =11.40, p<.01$ , but the

improvement was significantly greater for the experimental group (interaction),  $F(1, 81) = 4.78, p = .03$ .

- Lower body strength improved for both groups,  $F(1, 80) = 13.38, p < .01$ , but the improvement was significantly greater for the experimental group,  $F(1, 81) = 4.44, p = .04$ .
  - As expected, health knowledge on fall risk and osteoarthritis showed a main effect, such that both groups improved their knowledge of the topics,  $F(1, 83) = 275.56, p < .001$ , suggesting the program can be effective for improving health knowledge with or without including the exercise component.
  - Health activation values significantly increased from pre- to post-intervention for both groups,  $p < 0.05$ . Attendance was high (>93% in both groups) (Crandall et al., 2019).
- Gait performance associated with fall risk was assessed in participants ( $N=38$ ; Falls et al., 2018). Pre/post gait analysis at self-selected (SS) and fast walking speeds was measured using the GAITRite® Electronic Walkway.
    - Significant improvements (group x time) were observed for the experimental group at fast walking speed for ambulation time (AT) ( $\lambda = .878, F(1, 36) = 5.01, p = .031, ES = .122$ ); velocity ( $\lambda = .886, F(1, 36) = 4.61, p = .039, ES = .114$ ); and step length ( $\lambda = .864, F(1, 36) = 5.64, p = .023, ES = .136$ ). Significance at SS speed included AT ( $\lambda = .892, F(1, 36) = 4.37, p = .044, ES = .108$ ) single support ( $\lambda = .887, F(1, 36) = 4.59, p = .039, ES = .113$ ); and double support time ( $\lambda = .886, F(1, 36) = 4.63, p = .038, ES = .114$ ).
- **Program Costs:**
    - Licensing cost: 2-year license \$420.00 per organization for the first county. Each additional county cost \$315.00 for a 2-year license.
    - Training cost for an initial 2-year license term: Online training is \$210.00 per person. Training includes online access to targeted educational and marketing materials for participants, as well as a manual for facilitators. At least one person must be trained as a facilitator to implement Bingocize® in your organization. Groups of more than 20 participants require two trained facilitators. Additional online training can be purchased after the initial licensing period begins at a cost of \$210.00 if purchased any time before the end of the first year of the term. After the first year, each new online training will cost \$105.00.
    - Training cost after initial 2-year license term: Online training renewal is required at the time of initial licensing renewal, or the trained facilitator is prohibited from continuing to offer the Bingocize® program. Online training purchased anytime during the initial 2-year license term can be renewed for a reduced price of \$105.00. Any *new* online training added at the time of license renewal will cost \$210.00. The process for purchasing new additional online trainings is the same as during the initial 2-year terms. New online training purchased after the beginning of the licensing period will be purchased at a cost of \$210.00, if purchased at any time before the end of the first year of the term. After the first year, each new online training will cost \$105.00.
      - Example. Acme Area Agency on Aging (AAAA) purchases an initial 2-year Bingocize license for two counties. At the time of their initial license purchase, they also purchased 5 online trainings for their staff to facilitate Bingocize in AAAA facilities across the two counties. Six months after the beginning of the 2-year license, AAAA decides to purchase one additional training course for \$210.00. They then decide one year and two months (month 14) into the 2-year license to purchase one additional online training at a cost of \$105.00. This training is half price because it was purchased with a year or less



left on the initial 2-year license. AAAA now has seven total online trainings. At the end of the initial 2-year license term, AAAA decides to renew their initial 2-year license and the seven online trainings. They also decide to add two more trainings at that time. The renewal cost for each of the seven online training courses is \$105.00, while the two new trainings will cost \$210.00 each.

- **Equipment cost:** “Bingocize® in a Box” is \$365 (plus shipping and handling). The durable and reusable box contains equipment for up to 20 participants, but the box does NOT include a bingo game set. The box includes resistance bands, therapy balls, an official Bingocize® t-shirt for one facilitator, a set of Bingocize paper cards, and a package of approximately 60 prizes (actual prizes may change slightly based on availability). Purchase of at least 1 box is required with a license, but we suggest purchasing a box for each facilitator to take to the sites they serve.
- Curriculum reinforcements (prizes) are awarded to game winners. Typical curriculum reinforcements include small personal items e.g. lotion, shampoo, etc. (prizes are not provided), however, we offer curriculum reinforcement packages that can be used as prizes during Bingocize® play. The packages include items such as toilet bowl lights, touch lights, and water bottles.
- Additional curriculum reinforcements: We offer additional curriculum reinforcements that can be used as prizes to be awarded to winners during Bingocize® play. We include enough of these in the Bingocize® in a Box for one 10-week unit, but we encourage you to purchase extras either at the time of original purchase or down the road for future Bingocize® workshops.
- Apparel: We also encourage facilities to consider purchasing Bingocize® licensed apparel for facilitators, and as prizes for participants.

## Resource Requirements

- **Facility:**
  - Large room with tables and sturdy chairs without wheels; participants should be able to stand and move at least 4 feet from the table in each direction.
  - Room size should allow space for certified facilitator to move about the room.
  - Class size- up to 20 participants if one certified facilitator; more than 20 requires two certified facilitators.
  - A strong WIFI connection is needed if using the web-based game; a variety of low-cost tablets can be used for each participant or Bingocize paper cards can be used as well. Tablets are not included.
- **Equipment and material:**
  - A reusable “Bingocize® in a Box” is available, which is a durable and reusable box that contains approximately 60 prizes, an official Bingocize® T-Shirt for one facilitator, and equipment for 20 participants: includes resistance bands and therapy balls. \$365.00 (shipping not included).
  - Small curriculum reinforcements for Bingocize® game winners; 2-3 prizes awarded per game
- **Training Requirements:** Individual on-line facilitator training consists of five self-paced modules; Contact [Kristeen@bingocize.com](mailto:Kristeen@bingocize.com) for more information.

## References

1. Beauchamp, M. R. (2019). Promoting exercise adherence through groups: A self-categorization theory
- Revised 12/13/24

perspective. *Exerc Sport Sci Rev*, 47(1), 54-61. doi:10.1249/JES.000000000000177

2. Crandall, K.J. & Shake, M. (2016). A mobile application for improving functional performance and health education in older adults: A pilot study. *Journal of Aging Science*. 4(2): 1-5.
3. Crandall, K. J., & Steenbergen, K.I. (2015). Older adults' functional performance and health knowledge after a combination exercise, health education, and bingo game. *Gerontology and Geriatric Medicine* (1). October-December: 1-8, DOI: 10.1177/2333721415613201.
4. Crandall, K.J. (2014). Bingocize®: Successful integration of intergenerational service-learning into an exercise science practicum project. *Journal of Community Engagement in Higher Education*, 6 (2): 1-6.
5. Crandall, K.J., Shake, M., & Ziegler, U. (2019). Bingocize®: Assessing the impact of a game-centered mobile app on older adults' health activation. *OBM Integrative and Complementary Medicine*, 4(3):12; DOI:10.21926/obm.icm.1903041.
6. Falls, D.G., Crandall, K.J., Shake, M., Norris, E., Taylor, E., & Arnett, S. (2018). Efficacy of a mobile application for improving gait performance in community-dwelling older adults. *American Journal of Therapeutic Recreation*. 17 (2):9-19.
7. Middleton, G., H. Henderson, G. Clay, A. Mongan, M. Daniel, K.J. Crandall., M. Shake, & D. Broom. (2020). Exploring the effects of Bingocize®: an interactive community-based physical activity intervention for older adults in the UK. Technical Report. University of Lincoln, United Kingdom.
8. Mullen, S. P., Olson, E. A., Phillips, S. M., Szabo, A. N., Wojcicki, T. R., Mailey, E. L., & McAuley, E. (2011). Measuring enjoyment of physical activity in older adults: invariance of the physical activity enjoyment scale (paces) across groups and time. *Int J Behav Nutr Phys Act*, 8, 103. doi:10.1186/1479-5868-8-103
9. Park, Y.H., Song, M., Cho, B.L., et al. The effects of an integrated health education and exercise program in community- dwelling older adults with hypertension: A randomized controlled trial. *Patient Educ Couns* 2011; 82:133–137.
10. Picorelli, A.M.A, Pereira, L.S.M., Pereira, D.S., et al. Adherence to exercise programs for older people is influenced by program characteristics and personal factors: A systematic review. *J Physiother* 2014; 60:151–156.
11. Schafer, M., P. Upright, J. Michalik, & K.J. Crandall. (2023). Impact of 10-Week Evidence-Based Falls Prevention Program on Outcomes Related to Falls Risk in Community-Dwelling Older Adults. *International Journal of Exercise Science* 16(7): 1131-1141.
12. Shake, M., Crandall, K.J., Mathews, R., Falls, D.G., & Dispennette, K. (2018). Efficacy of Bingocize®: A game-centered mobile application to improve physical and cognitive performance in older adults. *Games for Health Journal*. 7(4): 1-9. doi.org/10.1089/g4h.2017.0139
13. Skevington, S. M., Lotfy, M., & O'Connell, K. A. (2004). The World Health Organization's WHOQOL-BREF quality of life assessment: psychometric properties and results of the international field trial. A report from the WHOQOL group. *Qual Life Res*, 13(2), 299-310.

doi:10.1023/b:qure.0000018486.91360.00

14. Taylor, B. A., & Pescatello, L. S. (2016). For the love of it: Affective experiences that may increase physical activity participation among older adults. *Soc Sci Med*, 161, 61-63.  
doi:10.1016/j.socscimed.2016.05.034
15. Tinetti, M. E., Richman, D., & Powell, L. (1990). Falls efficacy as a measure of fear of falling. *J Gerontol*, 45(6), P239-243.