

# Research Evidence for the Health Benefits of Dance Programs for Older Adults

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Presented at the Annual Conference of the American Society on Aging  
Washington, D.C.  
March 31, 2012

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# Presentation Objectives

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- To review the research evidence regarding the range of health benefits for older adults from participation in dance and movement programs
- To further understanding of approaches that can improve and expand the evidential base for the health benefits of dance programs
- To provide information on two dance programs, one for community-dwelling older adults (BeMoved®) and one for Latino elderly (BAILAMOS©), and how they can be replicated

# Contributions of Dr. Gene D. Cohen

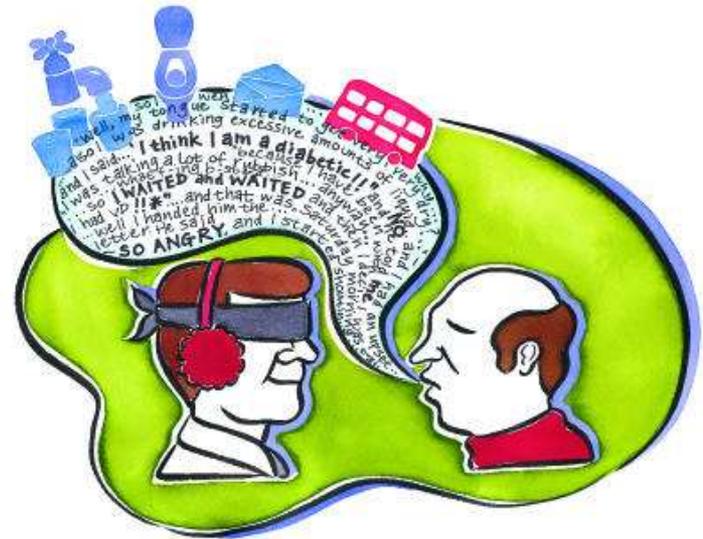
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## References:

- Cohen, G. D. (2000). *The creative age: Awakening human potential in the second half of life*. New York: Avon.
- Cohen, G. D. (2006). Research on creativity and aging: The positive impact of the arts on health and illness. *Generations*, 30(1), 7-15.
- Cohen, G. D., Perlstein, S, Chapline, J., Kelly, J., Firth, K. M., & Simmens, S. (2006). Impact of professionally conducted cultural programs on the physical health, mental health, and social functioning of older adults. *The Gerontologist*, 46, 726-734.

# National Center for Creative Aging

- Integrate the humanities and arts into all curricular activities to ensure person-centered care
- Develop an interactive curriculum that builds on narrative medicine and importance of “story”
- Develop clinical experiences for the program
- Oversee faculty development in the humanities and arts
- [www.creativeaging.org](http://www.creativeaging.org)



# Health and the Arts

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Only over the past decade have health researchers examined how arts can:

- Heal emotional injuries
- Increase understanding of self and others
- Enhance self-reflection
- Reduce symptoms
- Alter behaviors and thinking patterns

(Stuckey & Nobel, 2010)

# Health and Physical Activity

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- Fewer than one-third of older adults regularly participate in physical activity although it is the primary lifestyle behavior that reduces chronic disease risk factors
- Physical exercise programs have low adherence rates because they often are viewed as repetitive and boring
- Dance and movement programs offer a novel alternative

# The Appeal of Dance

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- Physical activity with other components that enhance its appeal:
  - Incorporates movements and music from different cultures
  - Promotes synchronized group interaction and social support
  - Enhances memory and cognition through effortful mental activity—learning and recalling sequenced steps and dance routines (Hultsch et al., 1999; Noice & Noice, 2009)

# Systematic Review of Research Literature

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- Findings on the health and well-being benefits of dance and movement programs for older adults show a range of benefits
- These include improvements in gait, balance, cognition and mood (Earhart, 2009; Keogh et al., 2009; Wallmann et al., 2009)

# Benefits of Dance and Movement

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- Effects on gait and balance are widely reported outcomes for community-dwelling older adults (Keogh et al., 2009; McKinley et al., 2008; Wallmann et al., 2009), including improvement in static and dynamic balance and gait speed for varied dance forms
- Improved shoulder range of motion and body image

# Benefits of Dance and Movement

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- With music as an external cue, dance involves learning movement strategies, such as walking backward and maintaining balance in motion, along with fellow participants (Earhart, 2009)
- Improved self-awareness (elderly and breast cancer patients)
- Instills a sense of control through the mastery of movements, changes in emotion, and escape from stress (Cotter, 1999; Kreutz, 2008; Sandel et al., 2005)

# Effects of Dance on Cognition and Mood

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- Research evidence also indicates positive effects on mood, e.g., increased positive and decreased negative affect (Bartholomew & Miller, 2002) and reduced anxiety and depressed mood (Stuckey & Nobel, 2010)
- A survey of 495 non-professional adult dancers identified 6 categories of perceived benefits, such as greater feelings of happiness and fewer negative feelings (Murcia et al., 2010)
- Castora-Binkley et al. (2010) found only one study (Alpert et al., 2009) that investigated effects of a dance program on cognition

# Alpert et al., 2009

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- Impact of jazz dance instruction on balance, cognition and mood
- Convenience sample of 13 women ages 52-88, 12 Caucasian
- Self report with repeated measures design pre- and post-intervention for 15 weeks
- Findings showed improvement in balance
- While no improvement in cognition was found, a small sample of white, well-educated women likely resulted in a ceiling effect



# Keogh et al., 2009

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- Physical benefits of dance for healthy older adults (age 60+)
- Study levels:
  - 1) RCT with 100+ participants
  - 2) RCT with fewer than 100 participants
  - 3) Non-randomized comparisons
  - 4) Non-randomized with non-dancers
  - 5) Case studies/no control
- 18 studies identified
  - No studies found with large, diverse samples of older adults (level 1)

# Keogh et al., 2009

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Only 9 level 2 studies found with:

- RCT design
- Explicit inclusion and exclusion criteria
- Clear description of the dance program
- Valid and reliable outcome measures

# Results: Keogh et al., 2009

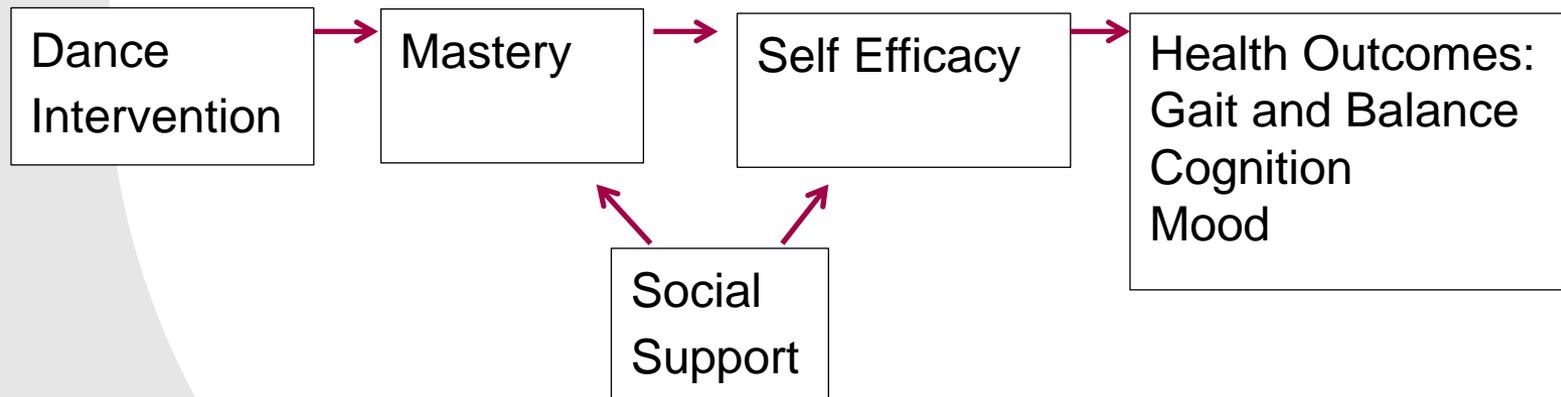
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- Dancing can significantly improve muscle endurance, aerobic power, and lower body flexibility
- Significant improvements also relate to fall prevention: improvements in static and dynamic balance, gait performance, gait speed, and agility



# Conceptual Model

## Social Cognitive Framework for the Health Benefits of Dance



# Limitations of the Studies

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- RCTs uncommon
- Small, homogeneous samples
- Convenience sampling
- Short duration of the intervention
- Limited attention to longer term effects (sustained impact)
- Limited description of intervention's design (content, delivery, instructor, intensity, amount and duration of the intervention)

# Recommendations for Future Research

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- Use meaningful control groups
- Specify intervention and outcomes precisely and standardize for cross-study comparisons
- Larger, more diverse samples
- Longer-term follow-up

# Recommendations for Future Research

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- Conduct in community settings
- Partner with the arts community and arts professionals
- Use established outcome measures  
(Castora-Binkley et al., 2010; Murcia et al., 2009; Stuckey & Nobel, 2010)

# Dance Programs for Older Adults

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- Programs shown as examples are easy, rhythmic and fun to do
- Designed specifically for older adults by a professional dancer/ choreographer
- Accommodate different abilities
- Program manuals for classes detail sequenced structured movements and accompanying musical playlists
- Promote replication

# BeMoved®

- Designed by a choreographer, Sherry Zunker
- Led by professional dancers trained in BeMoved methods (course and program manual for treatment fidelity and rapid translation)
- Sequenced structured movements and accompanying musical playlists for all genres
- Allows for differences in ability; ensures progression for all



# BeMoved®

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- Engenders social support as participants perform dance steps with their peers, socialize before class and during breaks, and share refreshments afterwards
- More than just doing a specified number of repetitions; being in “sync” with the other participants and the music

# BeMoved®

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- Sequenced repetitive dance steps involve weight shifting, stretching, balance, and torso movements in the style of various dance genres, with accompanying musical playlists
- Stretching, bending, and breathing components, designed to avoid strains and injury, are less strenuous than dance-fitness programs such as Zumba®, leading to sustained participation

# BeMoved®

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- Draws upon memory, executive function, motor speed, and creativity, hence the anticipated improved outcomes
- As with theater acting, BeMoved's choreographed dance routines demand sustained attention, effortful encoding, and efficient retrieval of material from memory

# BAILAMOS©

## Balance & Activity In Latinos, Addressing Mobility in Older Adults



## **Pilot Study (2010): David Marquez, PI**

- Physical activity assessed with accelerometer during each class
- Heart rate assessed during first and last class of each style
- Majority of dance time was light intensity
- Time spent in moderate intensity dance and steps taken modestly increased as skill increased over time
- Average heart rate based upon age-predicted maximum heart rate during dancing (56%-67%) was of light/moderate intensity

## Pilot Study (2010): David Marquez, PI

- **Sample:** Sedentary older Latinos with mobility limitations (*M* age=65.2) recruited at a Latino community center
- **Feasibility:**
  - 12 participants began the program, 9 (1 man, 8 women) completed it (75% retention rate)
  - Participants attended 85% of the sessions
  - Non-completers (n=3) left the program due to change in work status, trauma (non-program related), and relocation
  - Participants enjoyed the program [*M* = 6.75 across all classes, 1-7 scale]
- **Findings:** A community-based Latin dance program is feasible and adherence among sedentary older Latinos was high

# References

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- Alpert, P. T., Miller, S. K., Wallmann, H., Havey, R., Cross, C., Chevalia, T., et al. (2009). The effect of modified jazz dance on balance, cognition, and mood in older adults. *Journal of the American Academy of Nurse Practitioners*, 21, 2, 108-115.
- Bartholomew, J. B., & Miller, B. M. (2002). Affective responses to an aerobic dance class: The impact of perceived performance. *Research Quarterly for Exercise and Sport*, 73, 301-309.
- Castora-Binkley, M., Noelker, L., Prohaska, T., & Satariano, W. (2010). Impact of arts participation on health outcomes for older adults. *Journal of Aging, Humanities and the Arts*, 4, 352-367.
- Cotter, A. C. (1999). Western movement therapies. *Physical Medicine and Rehabilitation Clinics of North America*, 10, 603-616, ix.
- Earhart, G. M. (2009). Dance as therapy for individuals with Parkinson Disease. *European Journal of Physical and Rehabilitation Medicine*, 45, 231-238.
- Hultsch, D. F., Hertzog, C., Small, B. J., & Dixon, R. A. (1999). Use it or lose it: Engaged lifestyle as a buffer of cognitive decline in aging? *Psychology and Aging*, 14, 245-263.
- Keogh, J. W., Kilding, A., Pidgeon, P., Ashley, L., & Gillis, D. (2009). Physical benefits of dancing for healthy older adults: A review. *Journal of Aging and Physical Activity*, 17, 479-500.

# References

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- Kreutz, G. (2008). Does partnered dance promote health? The case of tango Argentino. *Journal of the Royal Society for the Promotion of Health, 128*(2), 79-84.
- McKinley, P., Jacobson, A., Leroux, A., Bednarczyk, V., Rossignol, M., & Fung, J. (2008). Effect of a community-based Argentine tango dance program on functional balance and confidence in older adults. *Journal of Aging and Physical Activity, 16*, 435-453.
- Murcia, C. Q., Kreutz, G., Clift, S., & Bongard, S. (2010). Shall we dance? An exploration of the perceived benefits of dancing on well-being. *Arts & Health, 2*, 149-163.
- Noice, H. & Noice, T. (2009). An arts intervention for older adults living in subsidized retirement homes. *Neuropsychology, Development, and Cognition. Section B, Aging, Neuropsychology and Cognition, 16*(1), 56-79.
- Sandel, S. L., Judge, J. O., Landry, N., Faria, L., Ouellette, R., & Majczak, M. (2005). *Cancer Nursing, 28*, 301-309.
- Stuckey, H. L., & Nobel, J. (2010). The connection between art, healing and public health: A review of current literature. *American Journal of Public Health, 100*, 254-263.
- Wallmann, H. W., Gillis, C. B., Alpert, P. T., & Miller, S. K. (2009). The effect of a senior jazz dance class on static balance in healthy women over 50 years of age: A pilot study. *Biological Research for Nursing, 10*, 257-266.

# Thank you!

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Questions or comments



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