

Enhancing Healthy Cognitive Aging through Participatory Arts

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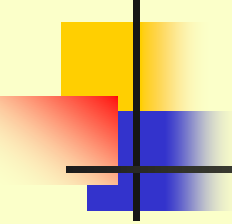
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Evidence-Based Participatory Arts Wellness Studies

- Dance (8)
- Theatre (8)
- Visual Art (3)
- Vocal Music (5)
- Instrumental Music (5)
- Autobiographical Writing (3)
- **Total : 32**

Subset of studies that used cognitive measures



- Dance (5)
- Theatre (6)
- Music (3)
- Autobiographical Writing (1)

Total: 15



Dance

1. Coubard, Duretz, Lefebvre, Lapalus & Ferrufino, 2011
2. Kattenstroth, Kolankowska, Kalisch & Dinse, 2010
3. Kattenstroth, Kalisch, Kolankowska & Dinse, 2011
4. Kattenstroth, Kalisch, Holt, Tegenthoff & Dinse, 2013
5. Kimura & Huzumi, 2012



Kattenstroth et al., 2013

- Participants: N = 35; Age: 60–94 years old, non-dancers
- Design: Pre-posttest with random assignment to condition
- Matched control group (continued usual lifestyle)
- Experimental group: 1h/week for 24 weeks
- Dance intervention started with 20 min. warm-up, followed by 40 min of dance
- Professional Dance Academy under master instructor
- Participants were taught sequences of dance steps with increasing complexity



Cognitive Measures

- 1) **Neuropsychological battery:** 12 subtests measuring immediate memory, visuospatial ability, language, attention, delayed memory
- 2) **Fluid Intelligence:** Raven Standard Progressive Matrices
- 3) **Reaction Times:** Standardized Reaction Time Analysis
- 4) **Selective attention and concentration:** non-verbal geriatric concentration test



Results

- Posttest: Dance group improved on neuropsychological battery, attention, nonverbal learning, reaction time.
- No change was observed in fluid intelligence
- No improvements were found for the control group



Theatre

1. Noice & Noice, 2006
2. **Noice & Noice, 2009**
3. Noice & Noice, 2013
4. Noice, Noice, & Staines, 2004
5. Noice, Noice, Perrig-Chiello & Perrig, 1999
6. Yuen, Mueller, Mayor & Azuero, 2011



Noice & Noice, 2009

Participants: N = 122 -- Mean age: 81 years

Design: RCT (acting, singing, WLC) 8 seventy minute classes over 4 weeks

8 Cognitive instruments:

- Immediate and delayed word recall
- Forward and backward digit span
- Immediate and delayed story recall
- Category fluency
- Problem solving



Results

- Significant improvement was observed for the acting group on 5 out of 8 cognitive tests

- Acting group improved against both the waiting list (no-treatment) controls AND the singing group



Acting and Mindfulness

- Pretending is prohibited
 - Genuine ongoing spontaneity although every word is learned and rehearsed
 - Thinking ahead is prohibited
- Performance in front of peers creates strong social bonding



Music

1. Bugos, Perlstein, McCrae, Brophy & Bedenbaugh (2007)
2. Hanna-Pladdy & Mackay, 2011
3. Hanna-Pladdy & Gajewski, 2012



Bugos, et al., 2007

- Participants: 31 musically naïve older adults (60-85 years)
- RCT: individualized piano instruction vs. no-treatment control group
- Duration: 6 months, 30 min lesson/week plus 3 hours practice/week
- New assignment each week
- Testing: Pretest, Posttest, 3 mo. Delay



Bugos et al.

Cognitive Instruments

- WAIS III (7 subtests) – consist of Information, Digit Span, Arithmetic, Similarities, Picture Completion, Block Design, and Digit Symbol.
- Vocabulary & Letter Number Sequencing subtests
- Trail Making Tests (Parts A & B)



Results

1. Improvement in digit symbol performance
 - Perceptual speed and memory abilities
2. Improvement on Trail Making Test (Part B)
 - concentration, attention & planning
3. No significant main effects for digit span, block design, letter sequencing, TMT (Part A)
4. Most gains were not maintained

Autobiographical Writing



1. De Medeiros, Kennedy, Cole, Lindley & O' Hara (2007).
2. De Medeiros, Mosby, Hanley, Pedraza & Brandt (2010).



Autobiographical Writing

DeMedeiros et al., 2007

- Participants: N = 18, retired physicians and spouses aged 62-84 years
- 8-week writing workshop, 90min/week
- One group pre-posttest design
- Cognitive Tests: list learning, verbal learning, processing speed & attention, visuo-spatial ability
- Findings: Improved processing speed, attention and verbal learning

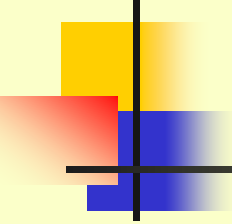
Recommendations for Future Studies



- 1. Standardized measures and common vocabulary
- 2. Comparable behavioral outcomes so that effectiveness across interventions can be assessed.
- 3. Consistent use of pre-post designs and active control groups

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- 4. Large enough samples to be meaningful
 - 5. Assessment of long-term effects
 - 6. More diverse populations
 - 7. Pre-post brain scans where possible



Anecdotal Reports

“After each acting class I feel excited, like my brain is on fire.”

“The sheer joy of singing, blending voices with others is mood-altering and psychologically uplifting.”

“I was not feeling well this morning but I would *never* miss a session.”

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1 R15 AG018266-01

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