

Music
is the voice of the soul



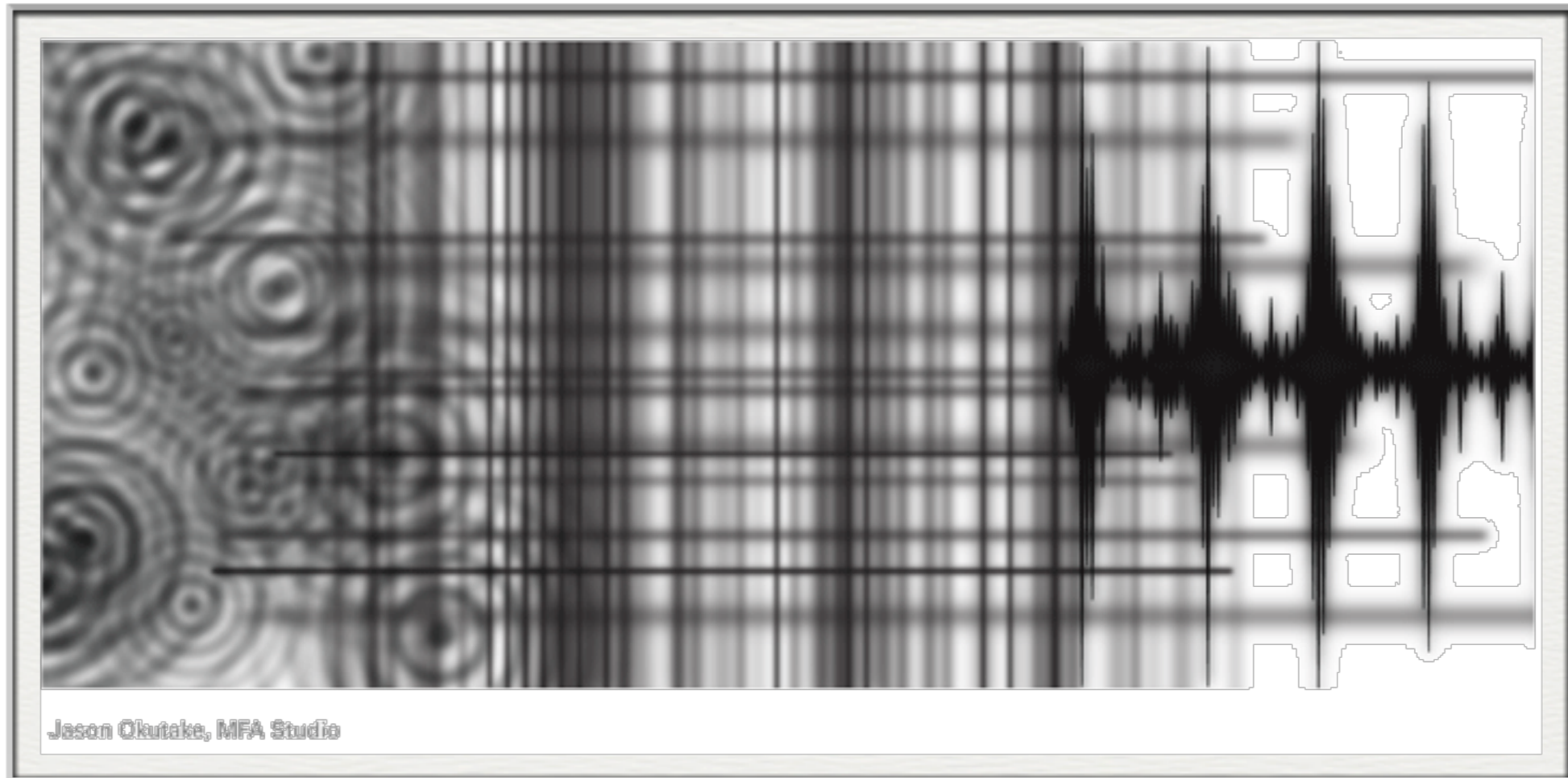
www.altriaseniorliving.com

Jaclyn F. Burge
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The Impact of Familiar Music on Rhythmic
Playback for Patients with Alzheimer's Disease

The Question

- How does listening to familiar music affect **rhythmic playback** in patients with Alzheimer's Disease?



Why Rhythmic Playback?

- Three dimensional psychological experience of rhythm:
 - cognitive: meter, accent, uniformity vs. variation, simplicity vs. complexity
 - motoric: rapidity, motion, rate, dancing vs. walking, graceful vs. thumping, rocking vs. swinging
 - affective: vital vs. dull, excited vs. calm, rigid vs. flexible, solemn vs. playful



- “People easily synchronize their music with a regular sequence of sounds, which demonstrates a strong psychological **link between rhythm perception and production.**” (Krumhansl)
- Rhythm also beneficial for attention and cognitive functions in its own right

The Background

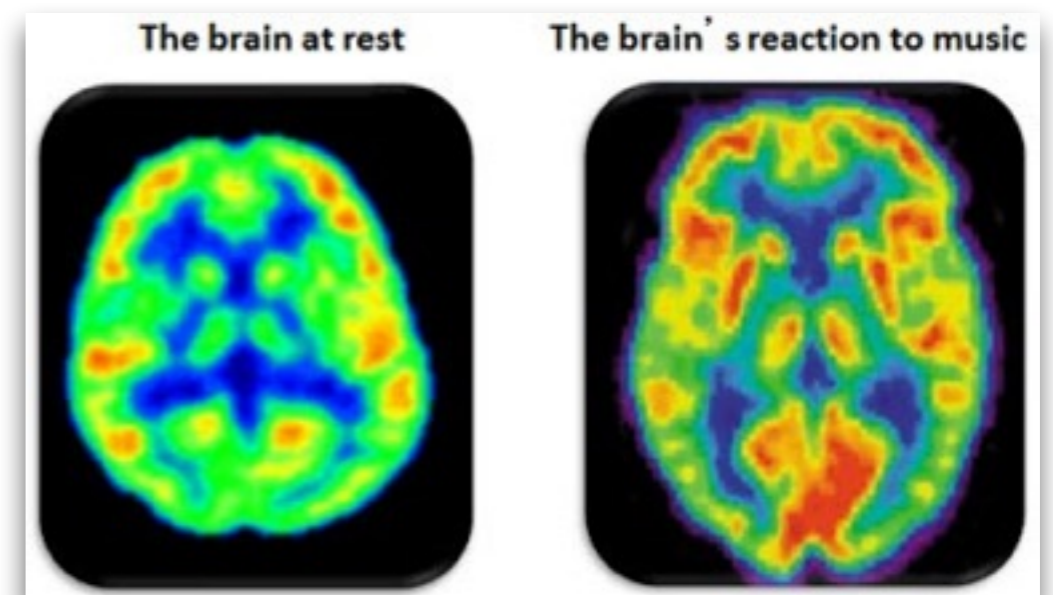
- **Alzheimer's Disease:** damage in the hippocampus and temporal parietal lobes result in loss of memory, personal biography, learning new information, and language capabilities
 - most common form of dementia
 - a progressive disease, 6th leading cause of death in the U.S.
 - no known cure



The Background

- **Listening to Music and the Brain**

- Auditory Temporal Lobe: processes rhythm, pitch, beat, melody - interacting with Frontal Lobe
- Wernicke's and Broca's Areas: lyric/word processing
- Visual Occipital Cortex: note and performance visualization
- Motor Cortex: tapping, clapping, dancing
- Amygdala: emotional reactions
- Medial Prefrontal Cortex: long-term memory association

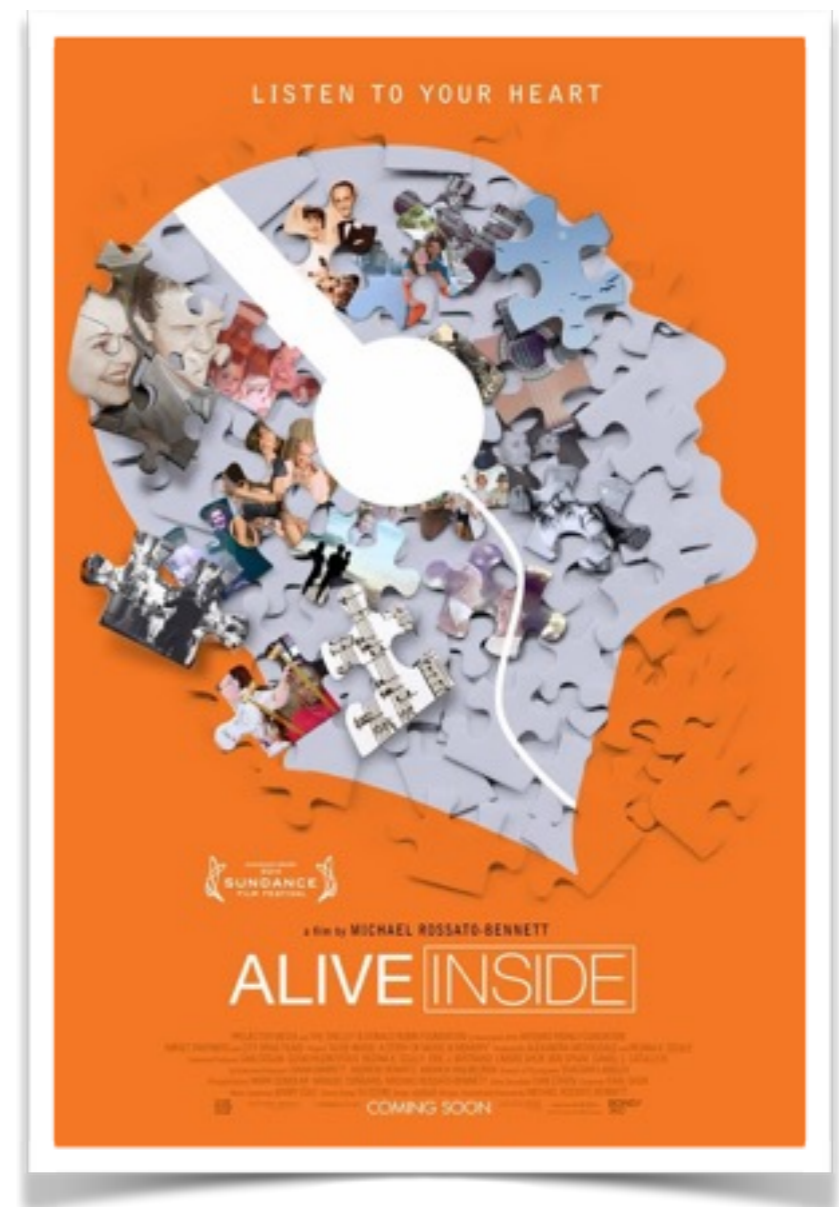


www.seattlemusictherapy.com

The Background

“The past which is not recoverable in any other way is embedded, as if in amber, in the music, and people can regain a sense of identity...”
- Oliver Sacks, M.D., author of *Musicophilia*

- **Recent research** indicates that music (particularly familiar music) is beneficial for patients with dementia in:
 - improving depression
 - delaying cognitive deterioration
 - encouraging conversation
 - triggering memories
 - alleviating apathy



The Methodology

- Clap a simple rhythm and have the participants try clapping it back
- Have participants sing-a-long to three familiar songs
- Clap a different rhythm and have participants try clapping it back
- Clap the original rhythm and have participants try clapping it back

The Experiment

- Alzheimer Services of the East Bay
- 2 trials
- 6 patients each time: (all participants could tell me their name, express musical preferences, sing all lyrics to the three songs, walk independently, and clap)
- Songs: *Amazing Grace, America the Beautiful, The Star Spangled Banner*

- Rhythms: 1)  2) 

The Results

TRIAL 1	Rhythm 1 (Before music)	Rhythm 2 (After music)	Rhythm 1 (After music)
Participant 1		X	X
Participant 2	X	X	X
Participant 3		X	X
Participant 4	X	X	X
Participant 5		X	X
Participant 6*		X	X

*Note: Participant 6 was the only repeated participant

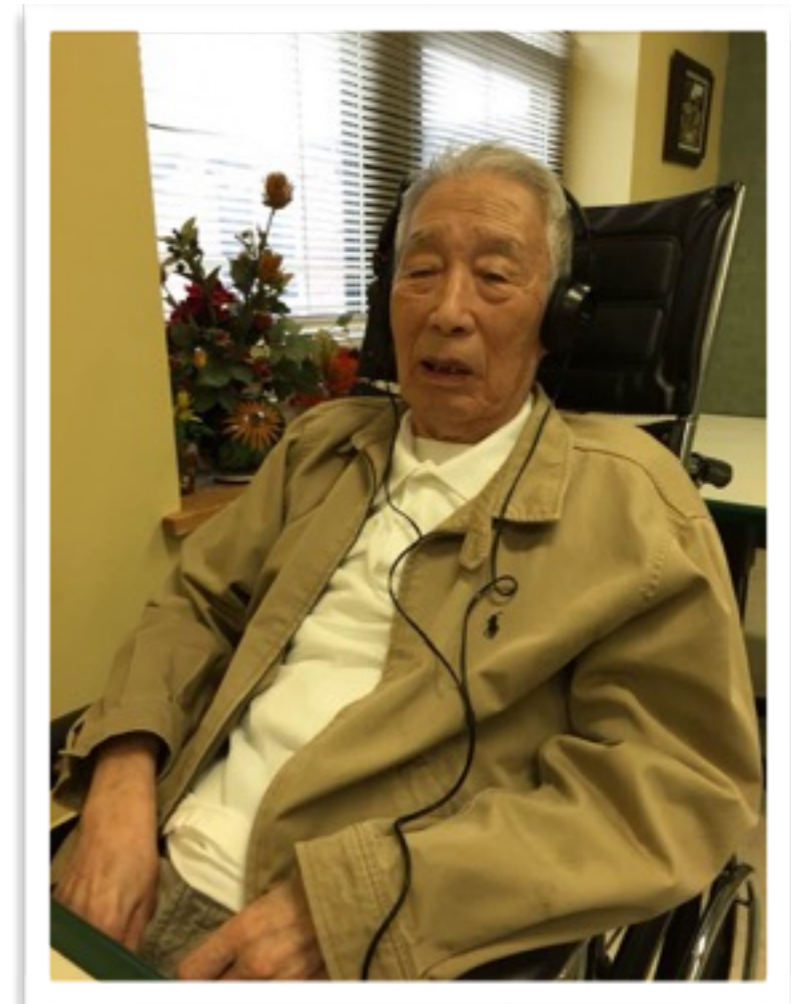
The Results

TRIAL 2	Rhythm 1 (Before music)	Rhythm 2 (After music)	Rhythm 1 (After music)
Participant 1			X
Participant 2	X	X	X
Participant 3			X
Participant 4	X	X	X
Participant 5	X	X	X
Participant 6*		X	X

*Note: Participant 6 was the only repeated participant

The Conclusion

- Familiar music allows the brain to reconnect with memory
- Rhythmic playback can be included with memory and cognitive function in benefiting from familiar music for patients with Alzheimer's Disease
- (Side observation: *familiar music makes patients very happy, and clapping is fun!*)



Resources

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