



Your brain on music: neuroscientist and Alzheimer's researcher Brandon Ally.

## Music Boosts Memory in Alzheimer's Song may be key to remembering daily meds

06.15.2010 By Susan Seligson, BU Today

Music's power to soothe or energize is well known, and there is good science behind the use of music to arouse dormant memories even in those whose minds are failing. Now the results of a recent BU study suggest that music may also help people with dementia retain new information, a finding with promising implications for the 5.3 million Americans living with Alzheimer's.

According to researcher Brandon Ally, a School of Medicine assistant professor of neurology, Alzheimer's patients who were put through a series of memory tests learned more lyrics when they were set to music rather than just spoken, while healthy elderly people remembered just as much and just as well with or without music. While the study was small — only 32 subjects — the results, described by Ally as stunning, could lead to a new way of helping Alzheimer's patients remember things required for their well-being and maintaining their independence. For example, a simple ditty might help patients remember which medications to take when, says Ally, whose research focuses mainly on how memory deteriorates in healthy aging as well as in elderly people with dementia.

In the study, developed from an idea suggested by Nick Simmons-Stern, Ally's summer research assistant, the BU team had a group of healthy elderly people and a group with Alzheimer's view a series of simple song lyrics on a computer screen, first with the words being sung by a young woman, then with the words being spoken by the same woman, and finally with no accompanying sound at all. To make sure subjects would have no knowledge of the songs beforehand, Ally and Simmons-Stern, now a Yale undergraduate, used only children's songs written in the last few years and did a random screening to be fairly certain the songs were outside elderly people's frames of reference.

After seeing and hearing four-line selections from the 80 test lyrics, the subjects were asked if they recognized the lyrics. For those with Alzheimer's, hearing the song sung significantly improved their recall; for people in the control group, the effect of hearing lyrics spoken or sung or merely appearing as text yielded the same result.

"A lot of groups have looked at how music unlocks past memories — a therapist may play music from the big band era to uncloud an octogenarian's memories of the war," says Ally. "But we were the first to show that Alzheimer's patients can actually learn new information using music." There have been studies of musicians with dementia who remembered tunes and how to play, but little else. These are what researchers call "procedural" memories, he says, like riding a bike.

Based at the Alzheimer's Disease Center facility at the VA Medical Center in Bedford, Mass., Ally hopes the results of this and future studies will shed more light on how the aging brain processes music and how musical memory differs from verbal memory. "One thing we do know about the way the brain processes music is that it's more of a global process," he says. "While the parts of the brain where we make memories — the medial temporal lobes like the hippocampus — are the first parts to be ravaged as Alzheimer's develops, music pulls from the cortical and subcortical areas, which aren't as damaged by the disease." As a result, neuroscientists believe that music may allow patients to code information using much more of the brain. Or it may be that music stimulates people and helps them pay more attention, he says, adding that even with healthy older adults, lack of focus plays a role in memory impairment. Whatever the mechanism,

the therapeutic value of music is accepted by the medical establishment, and some forms of music therapy are covered by health insurance.

Ally hopes to repeat the study with a larger sample size, and further investigate why music seemed to have no effect on recognition of test information by healthy adults.

Ally and Simmons-Stern plan follow-up studies to refine the results, comparing rhyming lyrics with nonrhyming lyrics and comparing the effectiveness of different types of melodies. "I wasn't expecting to find such a huge benefit to music and learning, and this is something people can use," says Ally. There's usually a long lag between study results and practical applications, but in this case "it was like a no-brainer," he says. "People could use this technique tomorrow."

<https://www.bu.edu/today/2010/music-boosts-memory-in-alzheimer%E2%80%99s/>

### **Comments on Music Boosts Memory in Alzheimer's**

Bob DeMarco on 06.16.2010

Music and Alzheimer's Caregiving

This is excellent and thought provoking research. All Alzheimer's caregivers should consider incorporating music into their daily lives. They should consider singing along with the Alzheimer's patient or consider engaging them by singing to them. Using this technique should bring joy into the lives of an Alzheimer's caregiver and the patient.

Bob DeMarco  
Alzheimer's Reading Room

Vania Pimenta on 04.23.2012

Music is life, energy, connection. Everything that we can do to help and try better results as a caregivers is wonderful. Let's go singing.

Jagdish P. Dave on 05.27.2012

Very encouraging and inspiring reaserch. My wife has Alzhiermer's disease. Yesterday, a long time friend came to visit us. She asked me to sing the song my wife and I used to sing together. I started singing it. to begin with my wife did not say a word. After a minute she started humming it and saying words some which I myself had forgotten. Watching the joy on her face and ours too was an unforgettable expereince. I am going to sing the songs taht we used to sing together and help her and me to revive the delightful times we had when her memory was sharp and intact. Thanks.

Barbara on 11.19.2012

I truly feel as though music does play a huge part in our life. I enjoy visiting the elderly at nursing with music and songs. I begin by telling them if they can giggle they can wiggle. It is heartwarming to see how they begin to think and relate to the music from their era. The brain is so amazing it allows their juices to begin to flow as they listen to music. They are able to picture where they were at that time.