

Many of our important moments in life are accompanied by a song, which makes the memory of the event more poignant and special. What if music could be used to help improve mood, focus, and the ability to communicate for over 6 million Americans suffering from Alzheimer's disease?

Key takeaways:

- Music therapy is an inexpensive, non-pharmacological way to decrease anxiety and agitation and to improve social connection for those with Alzheimer's disease or other dementias.
- The areas in the brain where music memory is stored are affected later than other areas of the brain in Alzheimer's disease.
- Singing and playing an instrument are procedural functions or habits that are retained longer in those with Alzheimer's than things like balancing a bank book, remembering to take medication, or turning off the stove.

How can music help Alzheimer's disease?

Alzheimer's is a devastating disease that destroys one's ability to think, reason, remember, and function independently. Sticky proteins called amyloid plaques clump between nerve cells in the brain and destroy them. Tangles of tau proteins twist inside brain nerve cells making it difficult for these cells to transport nutrients and communicate. The result is neurodegeneration of brain cells and loss of memories, knowledge and in the late stages, personality. In late-stage Alzheimer's, your loved one often no longer recognizes family or engages in daily activities.

With so much destruction and loss of brain function, how can music help with Alzheimer's disease? Those with Alzheimer's or other forms of dementia rarely have difficulty processing music. A few small studies have shown that music may access sections of the brain that have not been destroyed by Alzheimer's disease or may not become affected until much later in the disease process.

Music is used to learn things

Music has been used to learn things we want to remember since childhood. Remember singing your ABCs or the Fifty States song? Researchers have found that our response to music is preserved even with significant impairment of the executive functions of our brain, including reasoning, judgment, planning, speech, and language. Studies have shown that the ability to play an instrument, sing, or compose may be unscathed even in advancing

Alzheimer's disease. Musicians with Alzheimer's disease have even learned to play new music in some instances.

Where is music processed in the brain?

A 2009 study mapped the brain activity of study subjects while they listened to music to try to isolate the area in the brain where music, memory, and emotion are linked and stored. The study indicated that the area behind the forehead, the medial prefrontal cortex, is where this activity occurs. It is also among the last areas of the brain to atrophy as Alzheimer's disease progresses.

A later study indicated that there are a number of areas of the brain that contain music memory networks, such as in the frontal and parietal regions, which are less affected by amyloid plaques and other pathology associated with Alzheimer's disease.

Music releases chemicals in the brain

Researchers have found that not only is the location of the memory network in the brain important, but the fact that music causes the brain to release certain chemicals is also significant. Music triggers the release of brain neurotransmitters, such as dopamine, which is important in the creation of a pleasure/reward response.

Other studies have shown that music decreases the release of cortisol, thereby reducing the stress response, and increases the secretion of oxytocin, which increases bonding and romantic connections. Music has also been found to increase the release of chemicals, such as melatonin, serotonin, prolactin, norepinephrine, and epinephrine, which boost mood and decrease stress and agitation.

Musical memories last longer

Researchers agree that the parts of the brain that are stimulated by music are affected much later in Alzheimer's disease. Musical memories may last longer in Alzheimer's because they are procedural memories. When we sing to the radio, dance, or tap our feet to the music, it is something we do without thinking. It is a routine or habit like riding a bike, driving, or brushing our teeth. Procedural memories differ from other memories that originate in the hippocampus of the brain, one of the first areas to experience destruction in Alzheimer's.

We have seen famous singers and musicians, with advancing Alzheimer's or other forms of dementia, not be able to recall names of loved ones or friends, or hold conversations beyond a few sentences, but they are able to sing all their hits or play the piano or violin flawlessly. They are using their procedural memory, long ingrained and stored in a different area of the brain than the areas that store your shopping list, or the understanding of how to balance your checkbook or make an appointment.

Music as therapy

The goal of using music for your loved one with Alzheimer's disease is not to entertain or distract your loved one. The music is to be used as therapy to accomplish useful healthcare goals. A music therapist or caregiver can create a physical, emotional, social, or cognitive response depending upon your loved one's stage of disease and the music used.

The goal is generally comfort and connection. Music can help a loved one's anxiety or depression. A 2018 study cited a measurable decline in the use of antipsychotic and anti-anxiety medications in nursing homes and assisted living facilities using music therapy.

Dementia choirs and therapy programs

Singing produces a soothing rhythm depending upon the song that is chosen. The breathing that occurs with singing has a relaxing effect as well. Singing also creates social connections. Dementia choirs involving those with mild to moderate Alzheimer's have been organized throughout the country. Some involve their caregivers as well. Further research is required to determine how group singing might support people in a longer-term capacity.

There is a music therapy program offered across the country by a non-profit that uses playlists of your loved one with Alzheimer's favorite songs that can be listened to through headphones or other listening devices. A

documentary film in 2014 showed residents in long-term care facilities that were participating in the program for the first time.

They were typically anxious, withdrawn, slumped in their chairs, and apathetic. Once their playlists came on, they began to move their feet, some stood to sway to the music, and some even interacted with the interviewer. The music made them all generally happy and alert.

Using music at home

Music therapy is an enjoyable and inexpensive way to improve quality of life and deal with difficult behaviors without drugs at home or in a facility.

Music can be used at home to connect memories associated with various songs to reduce anxiety and agitation, decrease pain and blood pressure and increase social connection. It can improve quality of life for your loved one with Alzheimer's and for you as the caregiver.

1. **Create a playlist.** Include your loved one's special songs, songs that would evoke memories of happy times, such as childhood, wedding, or favorite movies.
2. **Help them relax.** Use the playlist to create a relaxed atmosphere during a time or activity that is usually anxiety-provoking for your loved one. Getting showered or late afternoon or early evening when sundowner's symptoms

appear may be good times to use music to alter the mood. Slower music will relax your loved one, whereas faster music will encourage movement and social connection.

3. **Do not overstimulate your loved one.** Turn off the television and avoid other distractions like answering the phone. Set the volume to one that is comfortable for your loved one. Pick the music based upon the activity you want to make it more pleasant.
4. **Sing instructions.** Singing instructions, rather than simply speaking to them, may create a clearer connection between the words and the desired action for your loved one.
5. **Play music for bath time.** One activity that is fraught with resistance in later stages of Alzheimer's is bathing. Slow meaningful dance music may help you hold your loved one close as you help him or her into the bath or shower.
6. **Support movement by your loved one.** Slowly help your loved one clap, tap a toe, sway, or even stand and dance.
7. **Encourage your loved one to sing.** Singing to the music can boost the mood and stimulate memories as well. Even those who cannot put together more than a sentence or two may be

able to sing the lyrics to a favorite song.

8. **Watch.** Observe your loved one's reactions to certain songs, both verbal and non-verbal, to be sure that you are playing only songs that create positive connections.

The few minutes it takes to arrange a few favorite tunes to engage a loved one with Alzheimer's may help that person stay off antipsychotic or anti-anxiety medications, and may stimulate brief, but healthy, social connections that improve your loved one's quality of life.

Resources:

1. [Why musical memory can be preserved in advanced Alzheimer's disease.](#)
2. [Music and Dementia: An Overview.](#)
3. [How Singing can Help People With Dementia and Their Family Care-Partners: A Mixed Studies Systematic Review With Narrative Synthesis, Thematic Synthesis, and Meta-Integration.](#)
4. [Study Finds Brain Hub That Links Music, Memory and Emotion.](#)
5. [Music Intervention Approaches for Alzheimer's Disease: A Review of the Literature.](#)

6. Does Music Therapy Improve Anxiety and Depression in Alzheimer's Patients?
