

# The Science Behind Music in Palliative Care Linda Allen

**The power of music to integrate and cure. . . is quite fundamental. It is the profoundest nonchemical medication. ~ Dr. Oliver Sacks, neurologist *Awakenings***

Music can move us to the heights or depths of emotion. It can persuade us to buy something, or remind us of our first date. It can lift us out of depression when nothing else can. It can get us dancing to its beat. But the power of music goes much, much further. Indeed, music occupies more areas of our brain than language does—humans are a musical species. ~Dr. Oliver Sacks - *Musicophilia*

When used appropriately, music can shift mood, manage stress-induced agitation, stimulate positive interactions, facilitate cognitive function and coordinate motor movements. This is because music requires little to no mental processing, so singing music does not require the cognitive function that is not present in most dementia patients. ~ [Alzheimer's Foundation of America](#)

Howard Croft, WEA Project Manager, said: 'We're really pleased to have taken part in this experiment, which has shown that singing can be a great way to form close bonds with others. Feeling connected to those around you, be it friends or family, is one of the key ways to improve your wellbeing. Adult education of every kind can help improve mental health and boost self-esteem, but singing together is a uniquely communal experience that can foster better relations between people from all walks of life.' ~--Workers' Educational Association (WEA), the UK's largest voluntary sector provider of adult education.

This qualitative study describes the experience of music and focuses on the emotional, social, intellectual and spiritual well-being roles that music plays in the lives of older people. In-depth interviews were used to explore the meaning, importance and function of music for 52 older Australians living in the community aged 60 years and older. The findings revealed that music provides people with ways of understanding and developing their self-identity; connecting with others; maintaining well-being; and experiencing and expressing spirituality. The results show how music contributes to positive ageing by providing ways for people to maintain positive self-esteem, feel competent, independent, and avoid feelings of isolation or loneliness. ~ *The meaning of music in the lives of older people: a qualitative study*. Terrence Hays, University Of New England, Victor Minichiello, University Of New England *Psychology of Music*, Vol. 33, No. 4, 437-451 (2005)

Petr Janata, a cognitive neuroscientist at the University of California, Davis's Center for Mind and Brain, recently located an area of the brain—the medial prefrontal cortex, just behind the forehead—that seems to serve as a hub for music, memory and emotions. In a study published online in the journal *Cerebral Cortex* in February, Dr. Janata had 13 UC Davis students listen to excerpts of 30 songs chosen randomly from "top 100" charts from years when they were 8 to 18 years old, while he recorded their brain activity using functional magnetic resonance imaging, or fMRI. Songs that were unfamiliar evoked reactions in the auditory processing parts of the students' brains; those that elicited emotional reactions stimulated other brain areas. When songs conjured up a specific personal memory, there was particularly strong activity in the medial prefrontal cortex. That's where what Dr. Janata calls "a mental movie" seems to play in the mind's eye, with music serving as its soundtrack. And, it turns out, this same medial prefrontal cortex had been identified in earlier research as one of the last parts of the brain to atrophy as Alzheimer's disease progresses. ~Bryan Derballa for *The Wall Street Journal*

This paper reports a study testing the effect of music on power, pain, depression and disability, and comparing the effects of researcher-provided music (standard music) with subject-preferred music (patterning music). The music groups had more power and less pain, depression and disability than the control group, but there were no statistically significant differences between the two music interventions. Nurses can teach patients how to use music to enhance the effects of analgesics, decrease pain, depression and disability, and promote feelings of power. ~ Siedliecki, S.L., Good, M., "Effect of music on power, pain, depression and disability." ~ *Journal of Advanced Nursing*. 2006 June

Music can soothe the savage breast much better if played by musicians rather than clever computers, according to a new University of Sussex-led study. Neuroscientists looked at the brain's response to piano sonatas played either by a computer or a musician and found that, while the computerised music elicited an emotional response -- particularly to unexpected chord changes - it was not as strong as listening to the same piece played by a professional pianist. ~ *Why Musicians Make Us Weep And Computers Don't* ScienceDaily (July 10, 2008)

As Bill Bundock's Alzheimer's progressed he became more and more locked into his own world. He withdrew into himself and stopped communicating with his wife, Jean. Jean said Bill lost his motivation, and his desire and ability to hold conversations, but all this changed when the couple started attending a local sing-song group, aimed especially for people with dementia. Jean said *Singing for the Brain* had unlocked Bill's communication block. "The first time we went to *Singing for the Brain* he did not join in. On the second session he was starting to join in and by the third he was thoroughly taking part. It was wonderful for us. The singing had started to change something. It really did make a tremendous difference. He started to come out of himself. His personality started to change and he became much as he was before, and he was able to hold a conversation. He is 82 and likes all the old-time songs, but he also started singing some Beatles songs and songs from the Broadway shows and even some modern stuff as well. He seemed to be able to slowly learn things again. I would take the song sheets home after the sessions and we would sing them at home. It enlivened him and he really enjoyed doing it"

~ *How Singing Unlocks the Brain* By Jane Elliott - BBC News Health reporter - Published: 2005/11/20 00:01:11 GMT © BBC

**OBJECTIVE:** The aim of this study was to assess the effect of intimate live music performances delivered by professional singers on the quality of life of persons with mild and severe dementia in nursing homes. **METHODS:** A sample of 54 persons with varying degrees of dementia participated in the study. ...Using a quasi-experimental design, quality of life was assessed on the dimensions of participation (human contact, care relationship and communication) and mental well-being (positive emotions, negative emotions and communication). **RESULTS:** Intimate live music performances have a positive effect on human contact, care relationships, positive emotions and negative emotions, especially for the mild dementia group. They lead to improved human contact, better communication, more positive and less negative emotions, and an improved relationship between caregiver and receiver. **CONCLUSION:** Intimate live music performances are an inexpensive, non-invasive, feasible way to improve a deteriorating quality of life for persons suffering from dementia. This form of supplementary care may also alleviate the task of caregivers. **IMPLICATIONS:** Nursing homes should make more use of intimate live music performances as forms of complementary care. ~ *The contribution of intimate live music performances to the quality of life for persons with dementia*. Maaïke van der Vleuten, Adriaan Visser, and Ludwien Meeuwesen Copyright © 2012 Elsevier Ireland Ltd.

The nature of illness often entails discomfort and disability. People who are seriously ill may experience life as constrained, gray, monotonous, and devoid of joy. Threshold Choirs offer their voices to uplift — to lift up — people feeling the weight of illness and the burden of difficult transitions. Music is a gift of beauty that complements medicine and en-souls human caring. ~ Ira Byock, M.D., palliative care physician, author of *Dying Well* and *The Best Care Possible*. [www.TheBestCarePossible.org](http://www.TheBestCarePossible.org).

### **USE OF MUSIC IN EOL (End of Life) CARE**

Evidence of the efficacy of music interventions for EOL care is mounting. Specific goals for the use of music in palliative and hospice care vary from reducing physical symptoms and increasing tolerance for treatment to easing emotional pain and spiritual distress.

**Physical Symptoms and Pain Management** Music can be used to create a calm environment, which in turn can improve management of other distressful symptoms. Brown et al showed through positron emission tomography scans of the brains of 10 healthy subjects that even unfamiliar instrumental music can activate the limbic and paralimbic areas of the brain, resulting in "strongly pleasant feelings." Autonomic functions can be affected through music's effects on the central nervous system and hormone production, thereby lowering blood pressure and heart rate, slowing or speeding up respirations, and decreasing nausea by decreasing the brain wave frequency, which affects gastric activity. Music can be an effective means of promoting a state of relaxation in patients and improving sleep. The tempo and rhythms in a musical piece can be matched with a patient's breathing to slow and deepen the breaths. In addition, music can be combined with progressive muscle relaxation techniques and meditation to enhance the effectiveness of each. Relaxing tunes have repeated motifs and long, sustained tones. Simple rhythms and repeated chord progressions, often using arpeggios (notes in chords played separately in sequence), create a flowing sensation in the music.

Music can be an effective complement to analgesia and can affect positively the physiological, psychological, social, and spiritual aspects of pain. Music may alleviate pain by disrupting the connection of pain to psychological variables (eg, past pain experiences, expectations of pain, interpretation of sensations as pain) and by otherwise reducing anxiety and helping the patient to relax. In addition, music can reduce the perception of pain by offering a competing stimulus, as well as raising the level of endorphins by listening to pleasurable music. Also, by distracting patients' attention from painful stimuli, music can change their perception of pain, stimulate positive thoughts and sensations, and elevate their moods, thereby decreasing the need for medication, increasing coping and sense of control over pain. ~*Music as a Therapeutic Resource in End-of-Life Care* Beth Perry Black PhD, RN , Patricia Penrose-Thompson MA **Journal of Hospice and Palliative Nursing**, March/April 2012

**A Post-Hoc Analysis of Music Therapy Services for Residents in Nursing Homes Receiving Hospice Care** This study analyzed the use of music therapy for residents in nursing homes receiving hospice care. ... A total of 80 participants' medical records were randomly selected for this study. All participants were in nursing homes, 40 of whom had been referred to music therapy. Results showed no significant differences on the time of death in relation to last visit by hospice professional, but there were significant differences in the length of life for those receiving music therapy. Females in this study lived significantly longer than males. Participants received significantly more music therapy sessions than social work sessions, and music therapists spent significantly more time in direct care with participants than did social workers. Care plan needs were analyzed graphically and indicate that music therapists meet important needs of participants.

By Hilliard, Russell E. *Journal of Music Therapy*