Music, Memory, and Dementia

A survey of research on the therapeutics of sound

Composed by Sara Kushner, Keys to Life Inc. October 28, 2015
Objective

The aim of this document is to present a broad array of research on music’s therapeutic effect on people with dementia. It also presents research on binaural beats technology: a way to induce particular brain waves by listening to two slightly out of tune notes. Finally, it presents research on Solfege: an ear-training system and mnemonic device that ascribes syllables (Do Re Mi) to notes of a scale. These last two topics are explored to show their usefulness with brain stimulation and memory improvement. This document will show that Keys to Life’s program for those with dementia, Alive with Music, synthesizes the best of what’s been researched into a unique and approachable course that is suitable for its intended population, yielding life-changing, positive results.

Summary

All studies agreed: music is highly beneficial for people with dementia in retrieving their sense of self, improving their connection with others, their functioning in every day life, their memory, and their ability to learn.

Studies show that listening to binaural beats helps the mind heal, grow, and improve functioning in many ways. Listening to binaural beats has been shown to change the dominant brain waves in a person’s mind and help them learn faster, sleep better, overcome addiction, and so on.

The studies on Solfege (especially a type called Fixed-do) along with anecdotal and historical evidence show its superiority as a mnemonic aid.

Historically, Fixed-do Solfege has been taught and employed by some of the greatest minds in music- such as Claude Debussy- and music education- including the Paris Conservatoire and the Yamaha Music School- adding “star power” to legitimize the merits of this system.

Keys to Life’s program Alive with Music synergistically capitalizes on the powerful results that are presented in this survey of studies:

• Retrieval of the self with customized playlists.
• Securing the self by making music a part of a daily routine (i.e. singing songs while tasks are performed thereby improving memory).
• Securing and expanding the self with the use of customized binaural beat sounds.
• Integrating the self into the community by making music as a group.
• Expanding the self and Improving memory with Solfege Passive Learning.
Studies on Music and Dementia

Memory

• **Boston University School of Medicine, Brandon Ally** [www.bu.edu](http://www.bu.edu)

A study of 32 people with Alzheimer’s showed that the group learned more words when they were put to music as lyrics instead of just spoken. “**We were the first to show that Alzheimer’s patients can actually learn new information using music.**”

Concluding thought: lyrics must work well with music and repetition is a must!

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**Procedural Memory**

Often referred to as muscle memory, a kind of implicit memory. Memory learned through repeated actions that becomes so deeply embedded in the mind that it can be done without conscious thought.

**Autobiographical Memory**

A combination of episodic memory (personal experiences and specific objects, people and events experienced at particular times and places) and semantic memory (general knowledge and facts about the world).

Thanks to [human-memory.net](http://human-memory.net)

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• **Boston University Alzheimer’s Disease Center, Andrew Budson** [livescience.com](http://livescience.com)

Theories that explain music’s “wake up” effect on those with dementia:

1. Music’s emotional content triggers strong memories and strengthens creation of new memories

2. Music is stored as **procedural memory** which is left relatively intact by the disease.

**Conclusion:** Music’s ability to “harness procedural memory and strengthen new knowledge by tying it to emotions” are what help those with dementia come alive and learn new things.

**Possible Benefits:** Songs can be created for the individual that helps them remember where they live, when to take their medications, and how to perform other progressive, daily tasks.

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You can look up numerous positive-result studies from the online journal “**Dementia: the international journal of social research and practice**”

http://dem.sagepub.com/ (write “music therapy” in the search engine)
• Summary of Five Reasons Why Music Boosts Brain Activity alzheimers.net

1. Music + Every day Activities = People develop a rhythm to help recall the memory of that activity, improving cognitive ability over time. Secure the self

2. Music aptitude and appreciation last until the end of a person’s life. Music helps reach a person that’s gone in so many other ways. Retrieve the self

3. Music can bring physical and emotional closeness. Music often leads to dancing, holding people close, and physical affection like hugs and kisses. Integrate the self

4. Singing stimulates multiple sites in the brain:
   - singing activates the left side of the brain,
   - listening activates the right side,
   - and watching a teacher lead a song activates the visual center. Retrieve, Integrate, and Expand the self

5. Music can shift mood, manage stress and stimulate positive interactions. The Alzheimers Foundation of America has an entire website dedicated to music therapy in Alzheimers patients. They say that, “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.

• University of Newcastle, Australia, Amee Baird and Severine Samson tandfonline.com

The researchers used popular music from the period of time that the brain-injured patient was recalling to help them recall personal memories. These patients did not have dementia. This was the first study to examine MEAMS: Music-evoked Autobiographical Memories. “Music was more efficient at evoking autobiographical memories than verbal prompts of the Autobiographical Memory Interview (AMI) across each life period, with a higher percentage of MEAMS for each life period compared with AMI scores.”
In The Neural Architecture of Music-Evoked Autobiographical Memories, Janata says that the “hub that music activated is located in the medial prefrontal cortex…is one of the last areas of the brain to atrophy over the course of Alzheimer’s disease…The degree of salience of the memory corresponded to the amount of activity in the upper part of the medial prefrontal cortex. This correlation supports Janata’s hypothesis that this brain region helps link music and memory. Janata also made tonal maps (that followed chord and key changes) and discovered that the brain processed those changes in the same place as memories.”

The Medial Prefrontal Cortex (mPFC) is believed to make associations between context and corresponding adaptive responses, especially emotional responses. Researchers believe the mPFC supports consolidation of memories both short and long-term and therefore guides behavior.

The mPFC is also believed to generate slow wave sleep (SWS). Atrophy of this area has been linked to a decrease in SWS. Some atrophy of this region is normal as people age but neuroleptics and antipsychotics further degrade this area.

Giving Voice in Minneapolis, MN and Sing Here Now in Beaverton, OR are two examples of choirs for those with dementia and their caretakers.

Choirs like these take advantage of the (above) data that says singing helps improve mental acuity for people with dementia.
Quality of Life and Beyond

- Multiple studies from the Institute for Music and Neurological Functioning

1. Study on the influence of music on memory in persons with dementia ’93-’95

Two groups of randomly selected people either verbally reminisced or had music therapy for 30 minutes at a time, 3 days a week for 10 months. “Of the significant findings... unfamiliar music had the greatest effect on altering patient’s EEG states and may have had the greatest impact on an individual despite the well-documented benefits of using preferred and recognized music in the music therapy intervention... The music group as a whole improved from nodding responses to verbalizing recognition. Overall, more than half of the participants in the verbal and music groups improved in their scores on the mini-mental status exam implying that there is the potential for improvement in patients with dementia.”

Unfamiliar music had a greater impact than familiar music.

The music group as a whole improved from just nodding their head to verbalizing responses.

Overall, more than half in both groups improved on their mental exams.

2. Study on the Effects of Music Therapy Intervention on... Quality of Life ‘97

This was a controlled study on individuals diagnosed with early and middle stage dementia in long-term care. One group engaged in talk therapy, the other in music. Both groups’ level of agitation and depression decreased but the music therapy group also increased their “activities of daily living to a statistically significant extent. This complex interaction effect implies that although depression and anxiety are highly correlated, music therapy allows the decrease of both variables that in turn effect how one navigates their daily lives.”

“Music therapy produced statistically significant changes in behavior and affect of even the most challenging individuals.”

“Behavior markers included conversation, smiling, sad affect, elation, flat affect, singing/humming, verbal, and non-verbal as defined by the Music Therapy Assessment Tool (MTAT).

All markers moved significantly in the appropriate directions.”
3. A Study on the Effects of Using Familiar Music to Stimulate Preserved Memory Function part of Concetta Tomaino’s PhD project, (Dr. Tomaino is the founder of IMNF).

“The purpose of this study was to describe how music of strong personal importance to persons with dementia affects their responses within the music therapy process.” The study also sought to uncover how the responses to familiar music could indicate “preserved memory function.” Participants improved their melodic memories and recall and increased their word-finding ability over a total of no less than sixteen 20-minute sessions. There was also trust-building with the therapist, an increase in spontaneous physical responses such as clapping, smiling, eye contact, crying, and gestures, and the use of more appropriate words eventually leading to conversation.”

“The aggregate of fragmented and seemingly unrelated statements made by participants did convey coherent personal information. This finding was only made apparent through extensive analysis of video spanning a long period of time...

The information implies that an understanding of self and personal needs still exists for an individual with Alzheimer’s disease.”

About the Founder of the Institute for Music and Neurological Functioning (IMNF)

Dr. Concetta “Connie” Tomaino is a world-renowned music therapist primarily working with individuals suffering from brain trauma and neurodegenerative diseases like dementia. Dr. Tomaino is the founder of the IMNF and she is the senior vice president for music therapy at Centerlight Health System (formerly Beth Abraham Family of Health Services).

Dr. Tomaino worked with Dr. Oliver Sacks while at Beth Abraham and he has championed her work calling her, “my co-worker and adviser in all things musical for more than twenty-five years.

Dr. Tomaino serves on the board for the Music and Memory Project.
• Summary of Effectiveness of Music Therapy with quotes/data from playlistforlife.com (A program in the U.K. similar to the Music and Memory Project)

1. “Music listening with personal preferences has been suggested to be particularly efficacious in the reduction of dementia symptomology such as agitation, anxiety (Sung, Chang & Abbey, 2006) and aggression (Ragneskog, Asplund, Kihlgren & Norberg, 2001. It also enhances verbal communication and assists in the recall and eliciting of memories associated with positive feelings (Sung & Chang, 2005).”

2. Many scholars have hailed not only the ‘medicalising’ properties of music to affect archetypal symptoms of dementia, such as agitation and associative pain (Jennings & Vance, 2002), but also the ostensible capacity for music to increase social interaction, verbal communication and aid memory function (Cuddy & Duffin, 2005).

3. It has also been posited that even modest benefits may in fact make the difference between living at home and going into institutional care (Herrmann & Black, 2000).

4. There are two leading strands of research on the use of ‘prescribed’ music for the alleviation of symptoms via receptive therapy (e.g. music listening) and/or active participation, including group singing, dancing and playing instruments (c.f. Cooke, Moyle, Shum, Harrison & Murfield, 2010).

5. Increased interaction between individual patients, subsequently decreasing their sense of isolation (Pollack and Namazi, 1992).

6. Speech reconstruction among people with deficiencies in verbal communication – a marked symptom in the latter stages of the disease (Riecker, 2000).

7. Perhaps most importantly, the fostering and heightening of a sense of identity (Svansdottir & Snaedal, 2006).”

“There currently exists no standardized or empirically validated personalized music, technology-based intervention for individuals with dementia.

Studies have also tended to neglect individuals living at home (and thus those in the early stages of dementia), for whom music may be particularly efficacious in halting or stagnating the progression of the many cognitive, behavioural and social deficits seen in the latter stages of the disease (Sung, Chang & Lee, 2010).”
Binaural Beats and Brain Wave Entrainment (BWE)

That sounds vaguely familiar…but what are you talking about?

Binaural beat technology (BBT) is an audio technology that induces (entrains) a dominant brain wave frequency by playing two slightly different sounds in the listener’s ears.

History Part I

“Binaural beats were originally discovered in 1839 by physicist H. W. Dove. He discovered when signals of two different frequencies are presented separately, one to each ear, the brain detects the phase variation…and tries to reconcile the difference. In doing so, as the two frequencies mesh in and out of phase, the brain creates its own third signal—called a binaural beat—which is equal to the difference between those two frequencies.”

lbddtools.com

The 5 brainwave frequencies and their functions

2. **Theta**: Dreaming sleep (REM), deep meditation, raw emotions, access to unconscious mind, creativity, and intuition, able to change habits and superlearning, improved memory. Too little creates anxiety and poor emotional control.
3. **Alpha**: A calm state that allows for easy focus and superlearning. Associated with mind/body integration, intuition, and being present. Increased serotonin production, pre-sleep/pre-waking state, light trance. Too little causes anxiety, OCD, and insomnia.
4. **Beta**: Daytime consciousness, associated with logic, problem solving, socialization.
5. **Gamma**: Simultaneous processing of information from different areas of the brain, associated with the highest virtues like compassion and unconditional love. Spirituality.

Thanks to brainworksneurotherapy.com, mentalhealthdaily.com and centerpointe.com
Binaural beats: proof of their ability to induce brainwave entrainment

Read more at http://www.centerpointe.com/articles/articles-research

- Dr. Lester Fehmi, Director of the Princeton Behavioral Medicine and Biofeedback Clinic and an authority on hemispherical synchronization of the brain confirms that “hemispheric synchronization and brain entrainment can be induced by binaural beats.”

- Dr. Arthur Hastings, Ph.D. former professor and founding member at the Institute for Transpersonal psychology in Palo Alto, CA induced sleep in his subjects by changing their brain waves with binaural beats.

- Dr. Bill D. Schul, former therapist for the Center for Human Development and one of the founders of the Center for the Improvement of Human Functioning states, “[P]hased sine waves at discernible sound frequencies, when blended to create ‘beat’ frequencies within the ranges of electrical brain waves... will create a frequency following response (FFR) within the EEG pattern of the individual...The FFR in turn evokes physiological and mental states in direct relationship to the original stimulus...It becomes possible to develop and hold the subject into any of the various stages of sleep, from light Alpha relaxation through Theta into Delta and in REM (dreaming).”

- Dr. Suzanne Evans Morris, Speech Pathologist of 45+ years and founder of New Visions uses Hemi-Sync binaural beats as one of her tools to help children who have trouble eating and swallowing. She has found binaural beats to be a salient factor in her patient’s improvement.

**History Part II**

1973: Biophysicist Gerald Oster, of Mount Sinai Hospital in NYC, researched binaural beats and affirmed their ability to entrain brainwaves in humans. He published what is now his famous paper, “Auditory beats and the brain” in Scientific American.

**History Part III**

Early 70’s: Bill Monroe and his fellow researchers at The Monroe Institute researched binaural beats using an EEG and also discovered that they were effective at brain wave entrainment. Their numerous studies showed that both hemispheres of the brain resonated the same way. Monroe received the first of three patents for “Frequency Following Response.” Their binaural beat product is called Hem-Sync.

thanks to monroeinstitute.org
Possible effects of brainwave entrainment (more from centerpointe.com)

Delay Deterioration via “neuro-pathway exerciser”

- “Researcher Robert Cosgrove, Ph.D., M.D. and an authority in pharmaceutics and biomedical engineering noted that technologies that alter brainwave patterns...have been observed to be an excellent neuro-pathway exerciser...The long-term effects of regular use...on maintaining and improving cerebral performance throughout life and possibly delaying for decades the deterioration of the brain traditionally associated with aging is very exciting.”

Superlearning, Insights, and Changing habits

- Thomas Budzynski, Ph.D. “has done extensive research on learning and suggestion when the brain is in a theta state. Theta, Budzynski suggested, is the state in which superlearning takes place—when in theta, people are able to learn new languages, accept suggestions for changes in behavior and attitudes, or memorize large amounts of information. He says, "We take advantage of the fact that the hypnagogic [theta] state, the twilight state... has these properties of uncritical acceptance of verbal material, or almost any material it can process." In this state, Budzynski says, "a lot of work gets done very quickly.”

- “Noted researchers Elmer and Alyce Green, of the Menninger Foundation, have also studied this phenomenon, finding that memories experienced in a theta state "were not like going through a memory in one's mind but rather like an experience, a reliving." Individuals producing theta waves also had "new and valid ideas or synthesis of ideas, not primarily by deduction but springing by intuition from unconscious sources.”

What if we used binaural beats for those with dementia to entrain alpha waves for relaxation & beta waves for focus and improved cognition? What if we somehow harnessed their high levels of theta and delta waves to help them learn new things and change behaviors? Is familiar music just a blast of theta waves?
• “Scientists have discovered that for memories to form, the brain must undergo a process called long-term potentiation (LTP), involving electrical and chemical changes in the neurons associated with memory. Without LTP, incoming information is not stored, but rather quickly and totally forgotten. Neurophysiologist Dr. Gary Lynch and associates at the University of California at Irvine discovered that the key to LTP is the theta brain wave pattern. "We have found the magic rhythm that makes LTP. There’s a magic rhythm, the theta rhythm." According to Lynch, this is the natural rhythm of the hippocampus, the part of the brain essential for the formation and storage of new memories and the recall of old memories.”

• “Dr. William Bauer, one of the foremost experts in the field of electromedicine, ‘What I think is happening... is that by sending out the proper frequency... we tend to change the configuration of the cell membrane. Cells that are at sub-optimal levels are stimulated to ‘turn on’ and produce what they’re supposed to produce, probably through DNA, which is stimulated through the cell membrane... You’re charging the cells through a biochemical process that can possibly balance the acetylcholine or whatever neurotransmitter needs to be turned on.’”

“Many researchers believe that different brain wave patterns are linked to the production in the brain of various neurochemicals associated with relaxation and stress release, increased learning and creativity, memory...These neurochemicals include beta-endorphins, acetylcholine, vasopressin, and serotonin... Recent studies show that insufficient acetylcholine causes memory loss and reduces learning and intelligence. Lack of acetylcholine has been linked in part to confusion and memory loss in patients Alzheimer’s disease (32, 33). Other studies have shown that when individuals are given substances that increase the amount of acetylcholine, they show significant increases in scores on memory and intelligence tests. from centerpointe.com
These studies have absolutely no conflict of interest and all agree: Binaural beats effect positive changes & there’s more to explore.

• Helfgott Research Institute, National College of Natural Medicine, Portland, OR
  *Binaural beat technology in humans: a pilot study to assess psychologic and physiologic effects, was a 2007 pilot study by Wahbeh H., Calabrese C, Zwiecky H. involved eight people using Binaural Beat Technology (BBT) for 60 days. They measured psychological factors like depression, anxiety, and quality of life and physiological factors including levels of cortisol, melatonin, and dopamine. Researchers found there was a decrease in anxiety, increase in quality of life, and a decrease in dopamine and insulin-like growth factor.
  Conclusion: BBT may have a positive effect on psychology but more research is necessary.

• Institute for Psychological Research and Leiden Institute for Brain and Cognition, Leiden University, Leiden, Netherlands
  *The Impact of Binaural Beats on Creativity, Susan A. Reedijk, Anne Bolders, and Bernhard Hommel “Results showed that binaural beats, regardless of the presented frequency, can affect, divergent but not convergent thinking. This suggests that binaural beats...are not suited for a one-size-fits-all approach.”

• Department of Epileptology, University of Bonn, Bonn, Germany
  *Auditory Beat Stimulation and its Effects on Cognition and Mood States (a survey of studies) Leila Chaieb, Elke Caroline Wilpert, et al
  Some studies they included on binaural beats
    • Binaural beats lowered pre-operative anxiety. Controlled study. Padmanabhan, R. U.K.
    • Binaural beats improved social, cognitive, and motor skills and sleep habits of those who had a traumatic brain injury (TBI). Klepp, S. OT. Norway

• Department of Psychiatry, Duke University Medical Center, Durham, North Carolina
  *Binaural auditory beats affect vigilance performance and mood. Lane JD1, Kasian SJ, Owens JE, Marsh GR. “Results suggest that the presentation of binaural auditory beats can affect psychomotor performance and mood. This technology may have applications for the control of attention and arousal and the enhancement of human performance.” In particular the Beta wave helped more than the theta/delta waves with the completion of the task and also decreased negative moods. The 29 participants were kept blind as to whether they were hearing pink noise (a random signal filtered to have equal energy per octave) or binaural beats.
Solfege: Music’s Elegant Mnemonic Aid

Enduring more than one thousand years, Solfege is the elegant formula of music.

**What is Solfege?**

It goes by many names including Solfeggio and Sol-fa but they all refer to an ear-training and sight-singing system that is believed to have been developed by the Italian monk, Guido D’Arezzo in the 11th century. Each syllable in the system— Do Re Mi Fa Sol La & Ti—goes with a specific pitch. The syllables were taken from the first syllables of a Latin prayer to St. John. Some argue that it’s ancestry comes from a similar Arabic system.

with thanks to wikipedia

Most people associate Solfege singing with their childhood music classes or *The Sound of Music*. Solfege is often used in American high school choirs and university programs as well as in primary instruction in Europe and Asia.

**Fixed or Moveable?**

Fixed-do means that no matter what key the music is in (A major, G minor etc) Do is always the same pitch. This constancy allows for easier pitch memorization. It is used in Europe, Asia, and Latin America.

Moveable-do, often employed by American choirs and colleges, makes the first note of any given key Do thereby switching syllables and pitches for each piece.

Solfege is used for aural (ear) skills and can also help improve note reading. It is considered good practice to first learn a piece of music on Solfege.
Research on the merits of Solfege as a memory aid

- **University of Hull, England** Working memory for music, pitch labels and solfège: A cross-cultural study of university students’ aural and cognitive skills A controlled study by Artemis Apostolaki, Ph.D. 2012. Some participants used Solfege for the first time, some had learned it at an early age and some had never learned it and didn’t use it for the study.

  - “Moreover, most subjects who participated in the solfège programme as part of the experiment were able to use solfège as instructed for the purposes of the experiment; as Fixed-do solfège is almost exclusively taught to novice musicians at a young age, the present study was useful in showing that efficient solfège learning is both attainable and beneficial during adulthood, even for students who are already proficient in music reading.”
  - Adults who learned Solfege for this study made improvements in each of their performances and improved more than the control group.

Conclusion: “There could very possibly be a genuine positive effect of solfège knowledge and use in the long-term retention of pitch sequences.”

- **University of San Francisco** An Investigation of the Influence of Fixed-do and Movable-do Solfège Systems on Sight-Singing Pitch Accuracy for Various Levels of Diatonic and Chromatic Complexity a quantitative study by Jou-Lu Hung, 2012. The researcher had 85 participants from the music school: half had studied Fixed-do and half had studied Moveable-do. The study found that “Participants trained under the Fixed-do Solfege system had statistically higher sight-singing pitch accuracy overall and at all three levels of diatonic and chromatic complexity with very large effect sizes…These findings suggest that the Fixed-do Solfege system is more effective for music with diatonic and chromatic complexity.”
Historical Testimonials for Fixed-do Solfege: The Conservatoire de Paris

Solfege denotes Fixed-Do for all quotes. Quotes taken from the above study at the University of Hull.

One of the oldest and most prestigious institutions for music in continental Europe, the Conservatoire de Paris, has included solfege teaching in its curriculum since its establishment in late 18th century; solfege classes were not regarded as rudimentary, but instead trained students to use solfege as means to achieving excellence in the study of harmony, theory and rhythm (Philipp and Martens, 1920).

“Pierre Baillot, a prominent concert soloist and violin teacher in the Paris Conservatoire, co-author, along with Kreutzer, of the official Conservatoire violin method, argues that ‘To have the student undertake the study of the violin before he has learned solfege is to condemn him to reading music without understanding it.’”

“Another leading figure in music pedagogy, composition and conducting, who believed firmly in the necessity of solfege was Nadia Boulanger: having experienced the Conservatoire both as a student and as a teacher, she considered solfege to be of primary importance for all musicians and for composers in particular, as it helped the development of aural and rhythmic skills and forms a solid basis for creation (Ohanian, 1977). Boulanger herself had been reported to have excellent solfege skills and to use them not only for reproduction and practice, but also for improvising (Peles, 1994).”
Anecdotal Evidence for the Primacy of Fixed-do Solfege

• The Yamaha Music School was the author’s introduction to Fixed-do Solfege at age 3.5. The program involved learning piano, notation, group and solo playing and singing, and used Solfege for learning all of the music— including familiar and unfamiliar melodies. Over time, the author realized that she heard all pitch with Solfege correctly superimposed on it. When she heard a doorbell ring, a car honk, or any music, she’d hear the Solfege syllable at the same time as the note. Perhaps she didn’t learn perfect pitch at the YMS but it was certainly strengthened and made much more sophisticated with Solfege.

• Albert Palmeter, a Portland-area piano instructor and composer, was trained in the Yamaha Music School method and taught the course during the 80’s. He noticed that the course had a profound effect on the pitch recognition of his students. He also noticed that the younger sibling in any pair of students would learn faster and improve their pitch faster than their older sibling. This was also the case for Sara and her older sister.

As an adult, the author would sing Fixed-do Solfege with her “Piano Forever” group class as part of the curriculum she developed. One day, as she listened to a symphony with her students, one of them said, “it sounds like the instruments are singing the Solfege.” The student was 8.

The author, Sara Kushner, performing at a Yamaha Music School recital at 7 years old.

Through singing and listening to Solfege we think those with dementia can begin to learn something new in a way that befits them.
Hand signs were developed by Rev. John Curwen in the 19th century.

Incorporating the hands with Solfege was first developed by Reverend John Curwen in the 1800s. The system gives a specific hand sign for each note of the scale as seen on the left.

The Kodaly method (pronounced Koh-DYE) was developed by Hungarian educator Zoltan Kodaly. His system makes ample use of the Curwen hand signs. KTL’s Alive with Music program employs them as well.

Your brain as you sing and sign Solfege

Your Brain

Sound processing

Singing and Listening

Verbal processing

Solfege Syllables

Short term and long term memory

In the moment singing; recognition

Fine Motor

Sign language

The Curwen hand signs are used in Alive with Music
Conclusion

There is a wealth of research about music and the mind, in particular how music effects those with dementia. Though not all of it is listed in this survey, all of it points to the healing effects of engaging in music in some fashion be it singing, listening, using it to perform daily tasks or recall old memories. Music is an effective path to reclaiming identity, learning new things, and enjoying life.

Binaural beats technology (BBT) has been found to be helpful for those wanting to improve their focus, memory, and more. Deeper research on the power of BBT is necessary though the extensive work of the past century is quite promising and millions of people can attest to its efficacy.

Solfege is a time-tested way to learn music. Research on Solfege shows that it helps people of all ages learn music. What’s particularly exciting is that simply listening to it helps one learn it. For those with dementia this is a promising path!

Final thought
Keys to Life’s Alive with Music program for seniors with dementia uses the best of music instruction and sound therapy to improve the quality of life of its participants- personalized music for consumption, music integrated into daily routine, group sessions, Solfege, BBT, and more. In the spirit of possibility, curiosity, and healing, we at KTL want to see what those with dementia are able to do with their time left on Earth.

❖ It’s possible that those with dementia can still grow and change in positive ways.
❖ It’s possible for them to retrieve and expand their sense of self.
❖ We can help them slow the progress of the disease and improve the quality of their life.

By engaging in Alive with Music’s individual and group music program those with dementia are given a chance to move beyond the disease, into something healing and profoundly beautiful.

Alive with Music
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