

The Sounds of Success

Music therapy helps stroke victims regain speech

By Jennifer Patterson Lorenzetti
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Stroke is the third leading cause of death in the U.S. and the leading cause of adult disability, according to the National Stroke Association. Some 780,000 strokes will occur this year, possibly resulting in brain damage, disability, or death.

For those that survive stroke, the road back to function can be a long one. And for some patients, that road is graced by music.

Barry's Story

At about the age of 50, Barry suffered a stroke that left him unable to walk, use his right arm and hand, and with global aphasia. After his stroke, Barry was very motivated to regain his ability to communicate through speech, and he requested speech therapy. His request had been denied, based on the prognosis that there was no reasonable possibility that he would regain speech.

However, upon his discharge from the hospital, the music therapy department recommended he continue music therapy, based on promising responses to music. They recommended Barry go to the Nordoff-Robbins Center for Music Therapy located on the campus of New York University in New York City. There, Barry worked with Alan Turry, DA, MTBC, NRMT, LCAT, managing director of the Nordoff-Robbins Center for Music Therapy.



Turry based his therapy on the concurrencies between speech and music, such as using melody to emphasize the natural intonation of words and phrases, rhythm to give them clarity of form and accentuation, and harmony to add an emotionally communicative layer to everyday words and phrases. This is the same technique that composers use to create songs for opera, musicals, and ballads, and it draws on the power of music to evoke emotions and to allow a different kind of communication.

"We are becoming more aware that music is effective [in treating stroke and brain injury.] It taps into so many parts of the brain," Turry says. He explains that brain research indicates that the human brain remains plastic for much longer than previously thought; instead of the brain becoming fixed at some point in childhood, it retains some ability to adapt to new circumstances. "It can form new connections when the brain is injured," he says.

Turley notes that when subjects are examined by MRI while listening to music, they show a different area of the brain activated than would be by normal speech. This gives therapists a window into the brain to reach those with brain injury or disease. "The same part of the brain that deals with memory deals with music, so someone with dementia might remember a song from when they were 21," he says. This opens that window to allow therapists to begin to encourage communication by tapping into emotion.

"Music bypasses everyday defenses [and impacts] cognition. [People] don't just listen for notes, but they anticipate," he says. This anticipation helps patients rediscover the skills needed for communication. "It links together the past, present, and future," Turley says. And, as with Barry, music therapy can help a person recover speech, either spontaneously or through several years of work.

Turley worked with Barry to help him use tone, melody, and rhythm to mimic the sounds of words and phrases he will need to use, with a goal of regaining his ability to speak these phrases. Barry recovered the ability to say things like "thank you," "how are you," "good morning," and "I'm feeling fine today."

Not only did this help him break through the wall, but those who observed his remarkable progress acknowledged that he might benefit from speech therapy. At this point, he is using simple phrases in social situations, can order his own food at a restaurant, and can communicate his needs with simple one- or two-word phrases, a long way from the hopeless situation others thought him to be in before.

Steps in Music Therapy for Stroke

Successful music therapy begins, like all therapy, with an assessment. "We get a sense of what they can do with music. Can they hear the pulse of music and play it? Can they hear the call and response in music?" Turley says. "Can they identify something about music that calls to them?"

Responding to music can occur in even the most severe patient cases. "They can be almost catatonic, and they can match the pulse of their breathing with the music," Turley explains. For a patient that starts at this point, the first challenge is asking the patient to change their breathing with the tempo of the music.

Turley explains that the ability to respond to music is innate. "Every single person has musical sensitivities; you don't need special abilities to respond to music therapy," he says.



Music therapy is a practice that can benefit a wide range of patients, and Turley is happy to work with therapists in other disciplines to craft an effective treatment. "Interdisciplinary therapy can be very helpful," he says. Turley says that their center videotapes each therapy session, partly to serve as a record to show to patients' other therapists to help facilitate more coordinated treatment.

However, he cautions anyone who thinks that understanding the power of music means that they can play recorded music and therefore offer music therapy. Turley emphasizes that music therapy is a skilled profession requiring more than just the desire

to use music therapeutically, and that the therapeutic professions should work together, drawing on a number of competencies, to get the best outcome for the patient.

Interdisciplinary Therapy

Taking the team approach are the therapists for Interim Health Care, based in Sunrise, Fla. There, therapists Jill Woodard, MS, CCC-SLP, and Stephanie Terry, DPT, collaborate with teams of therapists to provide both home health and outpatient care to stroke patients.

The team approach is helpful with these patients, as every stroke patient presents a different challenge. "Even though someone has had a stroke, [they each] respond differently. We take a team approach, with physical therapy, occupational therapy, speech therapy, and social work," Terry says.

"Patients are usually evaluated by their primary need: walking, talking, activities of daily living," says Woodard. Depending on the complexity of the case, the intake testing can be a standardized assessment, or simply a straightforward look at a patient's needs.



Families are an important part of the team for these therapists. "We speak with families and patients about what their goals are and what they are getting back to," says Terry. Depending on the patient, the desire to get back to work or gardening or golfing may provide the added incentive necessary for real progress.

For example, Woodard describes a patient who loved finance. The patient ran a business with her husband prior to her stroke, and she took pleasure in paying the bills and keeping the accounts. Woodard worked with her after her stroke to regain some of her math skills, and the therapy involved doing math problems and writing checks, even if the checks were not destined to be mailed or cashed.

For another patient, stroke got in the way of her ability to work in her yard, particularly raking leaves, which she greatly enjoyed. Her family brought in her rake, and therapy consisted of practicing this activity that was so important to her.

The team sees a number of younger stroke patients as well. One patient, in her 30s, worked hard in therapy to regain some of the ability to write invitations and keep her calendar, activities important to her. These cases all point to the value of therapy that emphasizes practicing the activities that the patient most wants to regain. "It is more powerful to order lunch than to name 10 items [from a list]," Woodard notes.

Hope for the Future

On the horizon, Terry sees new technologies that will help stroke patients. She has seen research supporting constraint-induced therapy, and she notes the development of devices like Bioness, a system that delivers electrical signals to the ankle to reduce foot drop.

Woodard also points to research on the brain, particularly studies examining mental imaging. In some studies, patients who imagined an activity had more success completing it than those who did not imagine the activity first.

Music, gardening, and bookkeeping are just a few of the many therapeutic techniques for dealing with the aftereffects of stroke. If, as Woodard says, stroke is not just for your grandmother, then it is only appropriate that the therapies keep pace as well. Therapists are doing just that.

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