

Music as medicine: Docs use tunes as treatment

Researchers explore how melodies can help regulate heart, boost hormones

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As Victor Fabry napped in his hospital bed, a quiet symphony filled his room. The steady pulse of a cardiac monitor marked the progress of his mending heart. Over that beat, the swaying strains of a Brazilian guitarist pumped nearly nonstop from a CD player on the shelf.

For nine days after his surgery at the Gagnon Cardiovascular Institute in Morristown, N.J., Fabry soaked up that tranquil, wordless strumming. And while he praised his surgeon, he raved about the musical score that accompanied his recovery.

His heart literally fell in rhythm with guitarist Tomaz Lima. The music became his medicine.

“Very restful, very soothing,” said Fabry, 68, now almost two years removed from the surgery. Immediately after his operation, a live harpist also played at his bedside. “The mind influences your recovery. Anything that quiets your anxiety is powerful.”

Listen carefully and you’ll hear the same refrain at a rising number of hospitals. From Massachusetts General to the Mayo Clinic, patients are hearing the first strains of a harmonious movement — the infusion and inclusion of music in the treatment of ailments, from brain disorders to cancer. This goes beyond the psychological smile favorite songs can induce.

Doctors are increasingly studying — and employing — the physiological dance music does with the body’s neurons and blood-carrying cells.

“We’re in the infancy,” said Dr. Ali Rezaei, director of the Center for

Neurological Restoration at Ohio’s Cleveland Clinic. During a surgery called deep brain stimulation — performed while patients with Parkinson’s disease are awake — Rezaei and his team play classical compositions and measure the brain’s response to those notes. “We know music can calm, influence creativity, can energize. That’s great. But music’s role in recovering from disease is being ever more appreciated.”

Using music to help the ill has been employed for thousands of years, even though modern medicine is just starting to understand how it works, said Dr. Claudius Conrad, a senior surgical resident at Harvard Medical School and, himself, a gifted pianist. He is set to launch the first study of music’s impact on the sleep cycles of acute-care patients.

“Research has already shown that if you play a piece — like Mozart — at a certain slow beat, the listener will adapt their heart beat to the beat of the music.”

From musical notes to hormone stimulation

The anatomical route musical notes take through the body is indeed a busy highway celebrated in many songs, from head to heart. Based on interviews with neurologists and cardiologists, the journey from an instrument string to your heart strings goes something like this:

Sound waves travel through the air into the ears and buzz the eardrums and bones in the middle ears. To decode the vibration, your brain transforms that mechanical energy into electrical energy, sending the signal to its cerebral cortex — a hub

for thought, perception and memory. Within that control tower, the auditory cortex forwards the message on to brain centers that direct emotion, arousal, anxiety, pleasure and creativity. And there’s another stop upstairs: that electrical cue hits the hypothalamus which controls heart rate and respiration, plus your stomach and skin nerves, explaining why a melody may give you butterflies or goose bumps. Of course, all this communication happens far faster than a single drum beat.

Before jetting through the blood stream, the signals are converted again — to hormones. At the University of Munich, Conrad was able to show that critically ill patients required fewer sedative drugs when they listened to one hour of Mozart piano sonatas. As expected, the patients’ blood pressures and heart rates eased with the music.

But what surprised Conrad is that the patients also showed a 50 percent spike in pituitary growth hormone, which is known to stimulate healing. Today, at Massachusetts General Hospital, Conrad asks his patients (or their families) in the surgical intensive care unit what music they’d like to hear; if neither is can provide an answer, he often plays Mozart.

Healing dose of Lady Gaga?

Classical is a common pick among doctors and therapists who use melody as a healing tool. The vibrations of stringed instruments in particular are said to mesh with the energy of the heart, small intestine, pericardium, thyroid and adrenal glands, according to a soon-to-be-published study by researchers at Gagnon Cardiovascular Institute in

New Jersey. But what about rock or hip hop? Country or house? Does the body react as positively to Lady GaGa as it does Bach? Do you heal faster with Beethoven or a dose of Miley Cyrus?



Cancer survivor comforts ailing with high notes

July 10: Singer Deforia Lane may not be a doctor, but as NBC's Kevin Tibbles reports, at Cleveland's University Hospitals, the staff is convinced her music helps heal patients.

Music and medicine

Sounds of healing

Parkinson's patients move to the music

'Purple Songs' helps kids cope with cancer blues

VIDEO: MUSIC AS MEDICINE

"I recommend listening to joyful music as part of an overall prescription for maintaining good heart health," said Dr. Michael Miller, director of the center for preventive cardiology at the

University of Maryland Medical Center.

Joyful? "Music that brings out a natural high in order to maximize endorphin release," explained Miller, whose research (presented last November to the American Heart Association) showed that hearing your favorite song can cause tissue in your blood vessels to dilate, increasing blood flow.

Miller examined 10 healthy, non-smoking volunteers before and after they grooved to tunes of their choice and measured a 26 percent jump in the diameter of their upper arm blood vessels. (Conversely, after wincing through music they hated, the volunteers' blood vessels narrowed by six percent.)

Prescription for helping brain injuries heal?

At Cleveland Clinic, Rezai and other neurosurgeons collaborate with The Cleveland Orchestra to compose classical pieces to play for patients during brain operations. Rezai then gauges how individual neurons fire when the head hears those foreign chords and cadences, and he compares that reaction to how the neurons behave when familiar songs fill the operating room. Hair-sized sensors placed in the brain translate those signals to an amplifier. Study results are expected in three to six months.

The firing of a neuron "may sound like static to some, but it's music to my ears," said Rezai. Patients tell him when the music soothes them, and Rezai can hear the

corresponding changes in a single neuron. The research, he said, can serve as a keystone for other studies of music's potential in treating people with traumatic brain injuries, stroke, multiple sclerosis and severe depression.

But some of the oldest healing music may still be the most potent. Frescos painted around 4,000 B.C. depict harp-playing priests. Today, live harpists can be heard at Gagnon, at the University of Rochester Medical Center and at least five other hospitals.

"This gentle but powerful instrument goes to the deepest places of the body that need to be healed," said Tami Briggs, a pioneer in "harp therapy" who has played at the bedsides of hundreds of patients, including many at the Mayo Clinic. "I'm not a nurse, but I know enough about the monitors, and what I see is blood pressure usually goes down (when I play), oxygenation rates go up. That's connected to that more peaceful place, where they are taking deeper breaths."

The harp is the only instrument that has 20 to 50 strings and is open, unlike, say, a violin. When a harpist strikes a chord, she also opens vibrations in strings just above and below the few she plucks. Those vibes, Briggs said, are absorbed by the body.

"When I play, it's as subtle as watching somebody relax in the littlest ways," Briggs said. "They fall deeper into their bed."