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# Alternative Medicine

## The Definitive Guide

“This book is long overdue. Finally, we have an authoritative text which will be a resource to both patients and healthcare providers. If you are interested in alternative medicine of any kind, and want the security of authenticity in this field, you’d better get *Alternative Medicine: The Definitive Guide*.”

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Compiled by  
The Burton Goldberg Group

# Sound Therapy

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*Sound and music can have a very powerful effect on one's health. Sound therapy is used in hospitals, schools, corporate offices, and psychological treatment programs as an effective treatment to reduce stress, lower blood pressure, alleviate pain, overcome learning disabilities, improve movement and balance, and promote endurance and strength.*

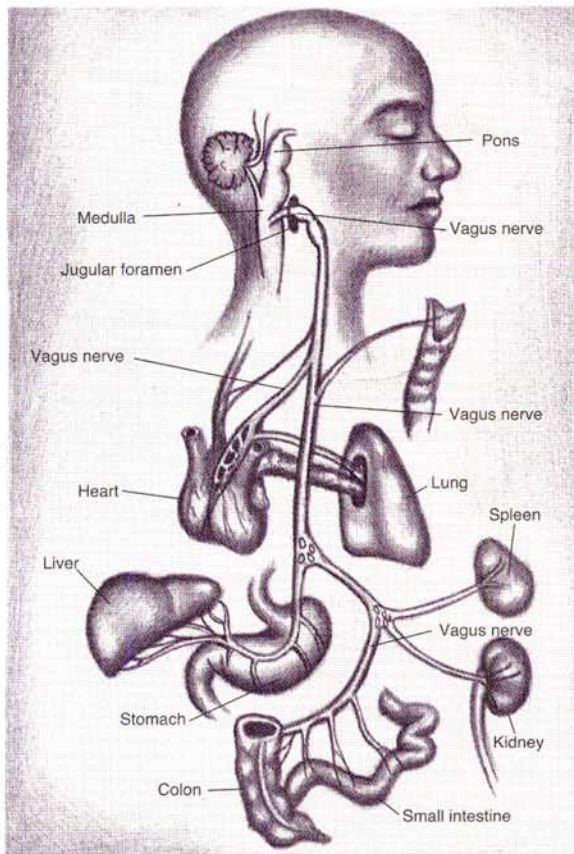
**T**he ability of sound and music to heal has been recognized for thousands of years. The writings of Pythagoras and Plato in ancient Greece, the soothing harp music of young David in the Bible, and the chanted hymns of the Vedas in India, all recognize the healing power of sound. In modern times the therapeutic power of sound was medically noted as early as 1896, when doctors discovered that a young boy's brain, partially exposed due to an accident, responded differently when various types of music were played. Certain music increased cerebral and peripheral circulation, while other music stimulated mental lucidity.<sup>1</sup>

Because the ear is not only the primary organ of hearing, but also has powerful influences on eye movement, the rhythms of the physical body, prebirth brain growth, and general regulation of stress levels in the body, greater emphasis is now placed on the therapeutic union of sound and healing. Recently, much attention has been placed on the negative aspects of sound, either from music played too loudly or from exposure to the hard noise of industrial machinery. "Calling noise a nuisance is like calling smog an inconvenience," states William H. Stewart, former U.S. Surgeon General, who suggests that "noise must be considered a hazard to the health of people everywhere."<sup>2</sup> Accordingly, one study found that more than 60 percent of incoming college freshmen have impaired hearing in high frequency ranges due to prolonged exposure to high auditory levels.<sup>3</sup>

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## How Sound Therapy Works

Sound therapists recognize that certain sounds can slow the breathing rate and create a feeling of overall well-being; others can slow a racing heart, even soothe a restless baby. Sound can also alter skin temperature,



*The vagus nerve and its connection to internal organs.*

reduce blood pressure and muscle tension, and influence brain wave frequencies. Although some sounds (like ultrasonic waves) are beyond the range of the ear, they can have a profound effect on the human condition.

Defined as “oscillating energy waves within the audible range,” sound originates and travels from one source to another as waves, each sound with its own velocity and intensity, and each with its own frequency, pitch, and wavelength. (Music is essentially a pleasurable sequence of sound waves.) The intensity of the vibration, or the loudness of sound, is measured in units called decibels. Although volume is a factor, it is not necessary that one be consciously aware of a sound for it to have an effect because sound creates a response in the entire body, not just the ear.

People respond to sound vibrations in two main ways: via rhythm entrainment and resonance. According to Steven Halpern, Ph.D., of San Anselmo, California, “Rhythm entrainment describes the phenomenon whereby, in the presence of any external rhythmic stimulus, the natural rhythm of the heartbeat will be overridden and caused to pulse in sync with the sound source. This may be the rhythm of drums, or the rhythmic pulse of the music, or it may just be your refrigerator’s motor.

“Resonance refers to the physical phenomenon in which different frequencies of sound (different pitches) stimulate the body to vibrate in different areas. Typically, low sound resonates in the lower parts of the body and high sound resonates in the higher parts of the body.”

Sound is linked to the physical body by the eighth and tenth cranial nerves. These carry sound impulses through the ear and skull to the brain. Motor and sensory impulses are then sent along the vagus nerve (which helps regulate breathing, speech, and heart rate) to the throat, larynx, heart, and diaphragm. Don G. Campbell, B.M.E.D., Director of the Institute for Music, Health, and Education in Boulder, Colorado, explains, “The vagus nerve and the emotional responses to the limbic system (specific areas of the brain responsible for emotion and motivation) are the link between the ear, the brain, and the autonomic nervous system that may account for the effectiveness of sound therapy in treating physical and emotional disorders.”

Various elements of sound influence separate parts of the brain. Rhythm, for example, engages the reptilian or hindbrain (see illustration), while its tempo can alter the sense of time. The human body also has its own rhythmic patterns, and there is growing evidence that the rhythms of

the heart, the brain, and other organs enjoy a special synchronicity. Illness can arise when these inner rhythms are disturbed.<sup>4</sup> Tone engages the limbic midbrain (see illustration), which governs emotion. According to Campbell, "The real power of sound is in the way the tonal or harmonic aspects influence our emotions and midbrain functions."

Sound can also be used to help the body regulate its corticosteroid hormone levels, helping to control the severity of spastic muscle tremors, reduce cancer-related pain, and reduce stress in heart patients.<sup>5</sup>

## Auditory Integration Training

Alfred A. Tomatis, M.D., who practices in Paris and teaches worldwide, was one of the first to notice a strong interrelationship between hearing, the voice, and psychophysiological development. His early work explored the relationship between sounds in the womb and the development of the brain with regard to memory, language, and learning. Dr. Tomatis discovered a direct connection between hearing impairment and vocal range, and a direct connection between hearing impairment and overall health and well-being.

In the early 1950s, Dr. Tomatis designed a system that duplicated how a mother's voice sounds to her unborn child. He then played this filtered voice to children with learning disabilities. In one case, a fourteen-year-old autistic boy who had not spoken since age four began to babble like a ten-month-old.

From these experiments, Dr. Tomatis and his colleagues developed the Electronic Ear, a machine that simulates the stages of listening development, used to repattern the hearing range and the attention span.

The Electronic Ear is designed to exercise the muscles of the middle ear and improve the ear's response to all frequency ranges. Special headphones equipped with a bone-conduction transducer (to sense vibrations through the bone) deliver sound to the patient via a sophisticated stereo system linked to tuning and filtering components.

As lower frequencies are filtered out, the proper auditory preference is introduced. Dr. Tomatis claims to be able to retrain the ear to stop blocking these frequency ranges of sound. Using the Electronic Ear, sound therapists have been able to teach those with dyslexia, autism, learning dysfunctions, and attention deficit disorders how to focus and listen more effectively. Others have improved their creative skills, musical ability, foreign language learning ability, and organizational ability.

Billie M. Thompson, Ph.D., Director of Sound, Listening and Learning Center in Phoenix, Arizona, used the Electronic Ear as part of her treatment for a hypersensitive six-year-old autistic girl who did not speak and who wore a ski cap twenty-four hours a day to limit outside stimulation. After three days using the device, the girl discarded her cap and went out to a restaurant with her family for the first time. She also went to church and heard an organ without having to leave in pain. Although she still does not speak more than a few words, she is more social now, participating in many of the family's activities, and no longer retreating into the corner in fear of sound anymore.



See *Autism, Hearing and Ear Disorders*.

“The human body has its own rhythmic patterns, and there is growing evidence that the rhythms of the heart, brain, and other organs enjoy a special synchronicity. Illness can arise when these inner rhythms are disturbed.”

While the Electronic Ear is currently being used in treatment centers throughout North America, it is only one aspect of the Tomatis method of treatment, according to Dr. Thompson.

“As the ear opens, the individual becomes more receptive and responsive to sound and more motivated to communicate,” says Dr. Thompson. “By retraining the ear, people of all ages profoundly improve

“*There are sounds that are as good as two cups of coffee.*”

—Alfred Tomatis, M.D.

how they learn and relate to others, as we are creatures of movement, rhythm, and sound. With the ear as a key integrator, organizer, and analyzer of information, sound therapy can profoundly enhance thought and communication skills and can make possible a vastly enhanced level of listening.”

According to Dr. Tomatis, longer mental and physical endurance can result from listening to Mozart or Gregorian chants, particularly the recordings from the French Abbey of Solesmes. Using an oscilloscope, he measured the Abbey’s dawn and midnight masses for Christmas and the masses for the Epiphany and Easter. He found that the sounds fell within the bandwidth he had already determined was uniquely suited for energizing purposes. “There are sounds that are as good as two cups of coffee,” offers Dr. Tomatis. “If I have a long job to do, I always put on Gregorian chanting because it enables me to remain charged without difficulty. I don’t put it on loud, but it’s always in the background.”<sup>6</sup>

Audiotapes based on Dr. Tomatis’ work contain enhanced high-frequency sounds that support and enliven the upper register sound of the listener.

Guy Berard, M.D., a French physician, developed a method of retraining, similar to that of Dr. Tomatis, which concentrates on patients who are hypersensitive to high-frequency sounds or who suffer from loss of normal frequency hearing. Often this hypersensitivity can result in behavioral and cognitive problems when certain frequencies are perceived in a distorted manner.

Dr. Berard uses a device called the Ears Education and Retraining System (EERS), which reduces hypersensitivity by optimally allowing all frequencies to be heard with the same comfort and clarity. This device takes music from a sound source (audio tape or compact disc) and filters out the frequencies to which the patient has shown hypersensitivity. The EERS then electronically modulates these frequencies and returns them via headphones to the ears. Dr. Berard has found that after about ten hours of listening to these processed sounds, the listener makes significant progress toward accepting that frequency.

One of Dr. Berard’s patients was an eleven-year-old autistic girl who suffered from both a hypo- (low) and hyperacute (high) sense of hearing. Over the course of twenty half-hour sessions using the EERS, Dr. Berard was able to decrease the hyperacute points of the girl’s hearing while bringing the deficits up, thus creating a more normal hearing pattern. This also helped correct the girl’s dyslexia, attention deficit, and hyperactivity, and today she is a happily married college graduate, working on a University of Oregon research project to help autistic adults.

## Toning

For years, the Institute for Music, Health, and Education has researched and trained students to use “toning” (making elongated vowel sounds and allowing them to resonate through the body) as a simple way to release stress, balance the mind/body, improve the ear’s ability to listen, and improve the speaking and singing voice.

“Toning is the art of making elongated vowel sounds and sensing where they internally vibrate,” says Don Campbell. Toning causes the brain waves to synchronize and balance within three to five minutes, and this greatly influences the sense of physical and emotional well-being.

“Specific areas of the brain are tuned to specific tone frequencies,” says Campbell. “The pitch of the vowel sound determines where it will resonate in the brain.”

According to Campbell, toning brings more benefit than singing or speaking because singing and speaking “move the vibratory epicenters so quickly there is no time for the body to balance itself with the sound. To sound the voice through toning is to massage ourselves internally. There is no other way to localize oxygenation, energy flow and pulsation noninvasively within such a short period of time.”

A voice with good timbre and rich overtones will recharge the individual each time it is used, notes Dr. Tomatis. For example, in the 1970s, when he was asked to investigate why monks in a certain French Benedictine monastery had become depressed, tired, and physically uneasy, Dr. Tomatis learned they had abandoned their former habit of chanting in Latin nine times a day. He recommended they resume their chanting. When they did, their energy increased and their depression and fatigue disappeared.

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## Therapeutic Uses of Sound Therapy

Today, sound has been incorporated into many different types of therapeutic settings, including hospital surgery, recovery, and birthing wards; the care of patients with Alzheimer’s disease, cancer, and AIDS; hospice (for the dying); for birthing; dentistry; and psychotherapy.

### In the Hospital

Music in the hospital setting is not a new phenomenon—it is used to reduce pain in surgical, dental, obstetrical, and gynecological procedures. Where music therapy is introduced patients view their hospitalization more positively, report reduced physical discomfort, and experience improvement in mood parameters. Ralph Spintge, M.D., of Germany, Executive Director of the International Society for Music in Medicine, has completed a study of nearly ninety-thousand patients in the peri- and post-operative phases of surgery. Ninety-seven percent of the patients said music during their recovery helped them relax. Other patients found that music enabled them to get by with less anesthesia. Soft, tonal music was found to be especially effective. Patients who listened to slow baroque or classical music a few days before surgery, then had it filtering through the recovery room, found that the music minimized postoperative disorientation.<sup>7</sup>

### **With Alzheimer's Patients**

Music therapy can be particularly healing in Alzheimer's patients. Patients who cannot communicate verbally and are unable to initiate purposeful movement have increased needs for sensory and environmental stimulation that can tap into remote memory. Music and speech patterns (tone and rhythm) are very effective and are utilized not only to provide psychological comfort, but also to enhance communication in an older individual who may be withdrawn, depressed, or institutionalized.

This training to improve communication is proven and recommended.<sup>8</sup> Family members can be trained to improve communication with loved ones using a variety of methods to increase attentiveness, especially for those in the early and midphases of the disease. These include tapping the hand in rhythm with speech, reading poetry to music, and playing music that has language-based phrasing, such as the slow movement of baroque concertos. Music as a time-ordered art form can make music therapy sessions beneficial by helping to reorient patients who become distracted by the symptoms of Alzheimer's. For individuals in the final stages of the disease, music therapy intervention frequently takes a palliative form and can be utilized to provide psychological comfort.

### **For the Dying**

Therese Schroeder-Sheker is an academic musicologist who founded the field of music thanatology. Using voice and harp in a twenty-year clinical practice, she reconstructed the medieval infirmary music once used within monastic medicine to comfort the dying. Her work has been successfully applied in numerous home, hospital, and hospice settings for the treatment of cancer, respiratory illnesses, and AIDS. This "musical-sacramental-midwifery," as Schroeder-Sheker calls it, is being used at St. Patrick Hospital and at the Mountain West Hospice, both in Missoula, Montana, as well as in other programs in the United States and Europe. Other professionals can be of great benefit to the person who is making the transition, as well as to his or her friends and relatives.

### **For Birthing**

"Many parents have discovered the benefits of playing a variety of relaxing music to their babies while still inside the womb," says Dr. Halpern. "But when it comes to actually choosing the soundtrack for the delivery room, the best long-term results, in terms of the health and well-being of the newborn, are coming from births that provide soothing, nurturing soundtracks."

The therapeutic application of music can be beneficial for the expectant mother who may be in a state of confusion during labor. Listening to music during the birth process often enhances feelings of comfort and security, and heightens self-esteem, socialization, and personal control over the situation.<sup>9</sup>

## In Dentistry

For more than fifty years, the healing properties of music have been implemented in dentistry and oral surgery. Wallace Gardner, D.M.D., of Boston, Massachusetts, asserts that loud, stimulating music effectively alleviated pain in 65 percent of his patients, and a Boston study found that sound stimulation was the only analgesic agent required in 90 percent of the five thousand dental operations performed.<sup>10</sup> Additional research shows that due to the release of endorphins (the body's own natural pain killers), audio analgesia with dental patients is comparable in effectiveness to morphine.<sup>11</sup>

## In Psychotherapy

As early as the 1950s, medical research showed that music can evoke a range of emotions from sadness to joy, and can be used to moderate feelings of anger or depression.<sup>12</sup> When music is enhanced by imagery, one's moods and physical sensations can alter rapidly. Recent experiments by Stanislav Grof, M.D., Jean Houston, Ph.D., and Helen Bonny, Ph.D., all show how music helps to deepen many aspects of the therapeutic process. A combination of music, imagery, and breathing cannot only bring about strong emotional releases, but can tap into realms of the unconsciousness that only the most powerful of drugs have been able to do.

Dr. Bonny, former Director of Music Therapy at the Catholic University of America, in Washington, D.C., had used music to facilitate psychotherapy, but began using music to heal herself when she developed heart disease. From her work, Dr. Bonny developed a technique called Guided Imagery and Music (GIM). "GIM involves listening in a relaxed state to selected music, a programmed tape, or live music in order to elicit mental imagery, symbols, and deep feelings arising from the deeper conscious self," she says. GIM is used in conjunction with psychotherapy for neurotic patients and as a way to lessen pain and anxiety and explore consciousness in mentally healthy people.

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## Instruments in Sound Therapy

An emerging field in Sound Therapy is the use of devices that utilize specific sound frequencies to achieve therapeutic benefits such as pain reduction or relaxation. Treatments from devices such as cymatic instruments and the Infratonic QGM are currently being used worldwide.

### The Infratonic QGM: The Machine That Produces *Qi* Energy

Lu Yan Fang, Ph.D., a senior scientist at the National Electro Acoustics Laboratory in Beijing, China, discovered that *Qigong* masters emitted from their hands high levels of waves called secondary sound. She constructed a machine that simulated this infratonic sound and tested it on over 1,100 hospitalized patients. Numerous therapeutic benefits were noted, including pain reduction, headache relief, increased circulatory functioning, muscular relaxation, alleviation of depression, and increased brain production of alpha waves.<sup>13</sup>



See *Energy Medicine, Qigong*.





*Sound therapy is uniquely suited to self-care. Many new sound devices and tapes can be used at your convenience in the comfort and privacy of your home.*

Her instrument, the Infratonic QGM, received awards of recognition from the China Ministry of Health and the National Committee for Traditional Chinese Medicine. In China it is medically recognized as an effective pain management tool. In the United States it is currently pending FDA (Food and Drug Administration) approval for use as a therapeutic massage device.

### **Cymatic Therapy**

According to Sir Peter Guy Manners, M.D., D.O., Ph.D., of Worcestershire, England, cymatic therapy, unlike other sound therapies, is not applied through auditory channels, but directly through the skin. Cymatic therapy uses sound waves within the audible range to stimulate natural regulatory and immunological systems, and to produce a near-optimum metabolic state for a particular cell or organ.<sup>14</sup>

“Every object, whether inanimate or alive, possesses a unique electromagnetic field that exhibits antagonistic, complimentary (resonant), or neutral reactions when it interacts with other electromagnetic fields,” says Dr. Manners. Resonant equilibrium represents the healthy state (resonance may be defined as the frequency at which an object most naturally vibrates); illnesses is represented by resonant disequilibrium.

Cymatic therapy uses a computerized instrument to establish equilibrium in the body by transmitting resonant frequencies of sound into the body. These signals pass through healthy tissues, but reestablish healthy resonance in unhealthy tissues.

Dr. Manners has researched the signals given out by healthy tissues. By intercepting electrical messages transmitted via the central nervous system to individual cells, this research has allowed the coding of cymatic signals that cells understand. Each tissue has been given an H-factor (harmonic factor) according to the signal emitted. The cymatic instrument adjusts acoustic audible sound frequencies in order to induce beneficial stimulation, activation, and circulation when applied to the body via direct contact with affected areas or by way of acupuncture meridians.

Cymatic therapy does not heal, but simply places the body in a situation so that it can heal itself without pain, surgery, or drugs. According to Dr. Manners, cymatic therapy for humans in the future will likely concentrate on the skin, peripheral nerves, and bone, since these are the areas capable of regeneration. It may also be useful in organ transplantation, balancing the resonance of the transplanted organ with that of the recipient.

Cymatic instruments have been in use worldwide for over twenty-eight years, and have been in use in the United States since the late 1960s. They are used by nurses, chiropractors, osteopaths, and acupuncturists throughout the world. Training is required to become a cymatic practitioner. Cymatic instruments produce no side effects, and the only contraindication for use is for patients with pacemakers.

## The Future of Sound Therapy

The emerging field of sound therapy recognizes that through sound, people can help tune themselves to a more fundamentally healthy state of mind, body, and spirit.

Instruments, devices, and systems such as sound tables, auditory floors, brain wave headsets, and numerous audio tapes and compact discs designed to manipulate brainwaves are beginning to appear on the market. "Instruments such as the Electronic Ear," says Dr. Thompson, "have already made great strides in treating patients, such as autistics, whose options were limited with other treatment methods." At the same time, sound therapists who realize that the "listening" components (auditory and psychological) are unique for each individual are beginning to test the use of their voices as instruments for physical adjustments integrated with massage, guided imagery, and physical movement.

Accordingly, many practitioners believe that sound waves will be elemental in the healing process of the future. Sound will not only be used for treatment, but perhaps also for the diagnosis and prescription of certain tones that can bring the patient's health back into balance.



## Where to Find Help

For further information on music and sound therapy contact:

**The American Association of  
Music Therapy  
P.O. Box 80012  
Valley Forge, Pennsylvania 19484  
(215) 265-4006**

*AAMT treats mental illness, including retardation, and provides hospital visits, psychological counseling, music healing, and stress reduction. It also accredits schools, and publishes a newsletter. A nonprofit organization that certifies music therapists, AAMT holds conferences for professional music therapists and the general public. It does not treat medical problems, but does offer referrals to music therapists.*

**The Chalice of Repose Project  
St. Patrick's Hospital  
554 West Broadway  
Missoula, Montana 59806  
(406) 542-0001 Ext. 2810**

*CORP is a nonprofit, seven-institution medical and educational cooperative that is housed at St. Patrick's Hospital in*

*Missoula, Montana. Offering three degree programs, it is a palliative-medical teaching and clinical organization that conducts research, publishes, holds conferences, certifies music thanatologists, and trains twenty-five resident music thanatology interns each year.*

**Georgiana Institute  
P.O. Box 2607  
Westport, Connecticut 06880  
(203) 454-1221**

*Provides education, workshops, consulting, and information on the Berard method.*

**Guided Imagery and Music  
Temple University  
Presser Hall 0012-00  
Philadelphia, Pennsylvania 19122  
(215) 787-8314**

*This organization teaches the GIM method. Provides a trilevel training program with internship, as well as fifteen programs taught internationally. GIM is*

also taught in three universities and accredited through the National Association of Music Therapy.

**The Institute for Music, Health, and Education**  
P.O. Box 4179  
Boulder, Colorado 80306  
(303) 443-8484

*The Institute trains students to use "toning" to release stress, balance the mind and body, improve the ear's ability to listen, and improve the speaking and singing voice. Video and audio cassettes are also available and year-long accredited courses are offered by correspondence.*

**The National Association of Music Therapy**  
8455 Colesville Road, Suite 930

**Silver Springs, Maryland 20910**  
(301) 589-3300

*NAMT is an association for music therapists that provides publicity for music therapy; publishes a journal, books, and videotapes on musical therapy; accredits schools; and sponsors a national annual conference.*

**Sound, Listening and Learning Center**  
2701 East Camelback, Suite 205  
Phoenix, Arizona 85016  
(602) 381-0086

*There are over 180 Tomatis Centers in Europe and now over a dozen in North and Central America that provide education, workshops, consulting, therapeutic sessions, and information on the Tomatis method.*



## Recommended Reading

***About the Tomatis Method.***  
Gilmore, T.; Madaule, P.; and Thompson, B., eds. Toronto: Listening Center Press, 1989.

*Presents Alfred Tomatis' research on the ear, brain, and communication. Reveals the role of listening in human communication with specific attention to learning disabilities.*

***The Conscious Ear.*** Tomatis, Alfred. Tarrytown, NY: Staton Hill Books, 1991.

*An autobiography of Alfred Tomatis, a pioneer in sound therapy, and its effects on learning and behavioral disabilities. He discusses the integration of the whole person and the interdependence on balanced listening. Gives alternatives to medication in the field of learning disabilities.*

***Mind, Music, and Imagery.***  
Merritt, Stephanie. New York: Plume Press, 1990.

*Explores how music can affect human emotions, spirit, and body. Offers a program and forty exercises designed to*

*stimulate creativity, reduce stress, increase memory retention, and promote health.*

***MusicMedicine.*** Spintge, Ralph. St. Louis: MMB Music, 1992.

*An up-to-date compendium of fine music therapists and researchers. Detailed articles on clinical studies around the world.*

***Music and Miracles.*** Campbell, Don. Wheaton, IL: Quest Books, 1992.

*Collection of essays from researchers, healers, and musicians about the ability of music to create spiritual, mental, and physical change.*

***Music: Physician for Times to Come.*** Campbell, Don. Wheaton, IL: Quest Books, 1991.

*A collection of essays by musicians, music therapists, physicians, scientific researchers, and spiritual teachers on the impact of sound vibrations as seen by modern science as well as Eastern, Western, Christian, and esoteric traditions.*

*The Roar of Silence.* Campbell, Don. Wheaton, IL: Quest Books, 1989.

*An artistic and scientific look at the healing powers of breath, tone, and music with lessons on using sound as a healing force.*

*Sound Health.* Halpern, Steven. New York: Harper and Row, 1985.

*An easy-to-understand book that draws on scientific and medical research, history, art, and psychology to explain the effects of music and sound on body, mind, and spirit.*

*“No illness which can be treated by diet should be treated by any other means.”*

—Moses Maimonides (1135-1204)