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Edited by Bill Gottlieb, Editor-in-Chief, **PREVENTION** Magazine Health Books

SOUND THERAPY

Music to Your Ears, Health to Your Body

Close your eyes for a minute and listen to the world around you. What do you hear? Car horns, jackhammers and blaring stereos? Or gentle raindrops, laughing children and the soothing strings of a symphony orchestra?

It may make a difference. Sound therapists say that what you hear can help—or hurt—your health. “I believe that sound, especially music, can be a great healer,” says Steven Halpern, Ph.D., composer, researcher and author of *Sound Health: The Music and Sounds That Make Us Whole*. “Sound can relax you. When applied the right way, it can help release energy and help your body heal itself.”

Therapists are using sound, especially music, to help people with a wide variety of medical problems, from Alzheimer’s disease to tooth pain. Medical doctors know about the power of sound, too. They use high-tech devices such as ultrasound machines to help heal soft-tissue injuries and to take diagnostic photographs of fetuses in their mothers’ wombs. And researchers have released a number of studies that verify music’s ability to ease pain, improve memory and reduce stress.

So how can you take advantage of sound therapy? Well, chances are that you’re already using it. Three in four people who responded to a *Prevention* magazine health survey said they listen to music to ease tension and stress. And of those, 82 percent reported that it brings significant relief.

Experts say people can harness the healing power of sound in many ways. You can listen to music that quiets your mind and relaxes your body. Or walk through a forest and soak up the sounds of nature. Stroll along the beach and listen to the waves lapping the shore. Sing to yourself, play an instrument or learn toning, where you make a series of elongated vowel sounds to ease tension and energize your body. (For more information on how to do toning, see “Hum Yourself to Health.”)

“The rewards of sound are great,” Dr. Halpern says. “The more we learn about it, the more we see its potential as a natural healer. And one of the best parts is that it’s something that people can learn to do for themselves.”

A HISTORY OF HARMONY

Mankind has long recognized the power of sound. About 2,500 years ago, the Greek mathematician and philosopher Pythagoras developed “prescrip-

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tions” of music for his students. He told them which sounds would help them work, relax, sleep and wake up better. The Bible tells of David, the famed harp player whose music eased the madness of King Saul. Charles Darwin believed that prehistoric humans originally used musical sounds as mating calls.

Unfortunately, no one knows exactly what is behind sound's power. “We’re

HUM YOURSELF TO HEALTH

If you want to give sound therapy a try, start with the handiest and most versatile of all instruments: your vocal chords.

“I do not believe in putting sound into another person's body when his own voice can massage his own body from within,” says Don G. Campbell, director of the Institute for Music, Health and Education in Boulder, Colorado, and the author of *Music: Physician for Times to Come*. “The sounds you can make with your own voice can be the most powerful healer of all.”

Campbell recommends a process called toning, which involves making elongated vowel sounds. The vibrations from the tones can help relax you, ease stress and balance the mind and body, Campbell says.

In his book *The Roar of Silence: The Healing Power of Breath, Tone and Music*, Campbell outlines simple exercises that he says can show the relaxing power of toning.

Start by sitting in a comfortable chair. The first thing you have to do, Campbell says, is ask the left, rational side of your brain, the side that controls thought and that may find this exercise new and challenging, permission to experiment with tone. Ask your brain to explore the vowel sounds for ten minutes.

Now close your eyes and focus on listening. Take a deep, easy breath and start humming “a soft and resonant sound,” Campbell says. There is no need to worry whether the sound is high or low or whether it is beautiful. Gradually begin to sense the vibration of the sound in your chest and head.

Campbell suggests that you allow the sound to naturally rise and fall without effort. Place your hands on your cheeks and let them feel the sound. Listen with your hands, not with your ears. Continue toning with your hands, feeling your face and skull for five minutes.

Then relax your hands and tone on just one sound, such as *ah*, for another five minutes, keeping your eyes closed. When you are finished, just notice the relaxation that has come to your mind, body and breath.

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aware of many of the effects that sound can have on the body,” Dr. Halpern says. “But no one can really, really say how sound therapy helps heal the body.”

All sound, whether it comes from a shiny brass trumpet or a rusty car muffler, travels in waves of energy. These waves have a number of variables that give a sound its unique quality. Among others, there are velocity, or the speed at which the waves travel; frequency, which is the number of waves per second that an object produces; and intensity, which is a measure of a sound’s loudness.

Our body’s main sound sensor is the ear. The skin, bones, fluid and nerves in the ear help collect sound waves and send impulses to the brain. The brain reacts to these impulses and sends out directions that help control heart rate, breathing rate and other bodily functions.

Dr. Halpern says sound can have a great effect on your heartbeat. “Your heart will speed up or slow down to match the rhythm of a sound,” he says. “If you’re listening to music with a fast drumbeat, your heart will speed up. And if you’re listening to a slower piece, your heart will beat slower to match it.” Dr. Halpern calls this process entrainment and says you can test it yourself by listening to various pieces of music, fast and slow, and then taking your own pulse.

Sounds can also affect your breathing, blood pressure and muscle tension and perhaps cause the release of painkilling, mood-changing chemicals called endorphins, Dr. Halpern says. All of these factors may combine to create a state of total relaxation, he says, reducing stress and giving the body a chance to heal itself.

One theory holds that vibrations from sound waves can also have a direct impact on individual body parts. Science has long known that every atom vibrates, emitting sound waves even though they’re far too faint for us to hear. Since body parts are made up of atoms, they all produce sound waves. Some therapists believe that these sound waves are altered when disease or stress hits—and they also believe that directing sound waves at the body or its parts can restore natural rhythms and encourage and support healing. This technique, called cymatic therapy, is used in the United States by holistic practitioners, including acupuncturists, osteopaths and others.

Finally, there’s the theory that sound waves can balance energy centers, or chakras, in the body and promote health. Eastern philosophy holds that the body has seven chakras, which control function and energy flow in different organs of the body. Dr. Halpern believes that the chakras vibrate at specific frequencies that relate to the notes on a music scale. When there are disruptions to the chakras caused by stress, disease or other factors, the frequencies are thrown off. By applying specific sounds or music to the body, the chakras can be returned to normal, and the body will heal itself, he says.

SOUND THERAPY**THE SCIENCE OF SOUND**

Though researchers are still fuzzy on how sound therapy works, there's plenty of scientific proof that it can be effective for everything from reducing stress to boosting your brainpower. Many studies, for example, have shown that music can reduce pain and ease anxiety during surgical procedures. German researchers found that patients having gastroscopies, during which a doctor runs a snakelike scope down the patient's throat to look at the stomach, had lower levels of stress hormones in their bloodstreams when they listened to the music of their choice during the procedures. Doctors at the Bethesda Naval Medical Center in Maryland found that men who listened to music during sigmoidoscopies reported feeling more relaxed during the sometimes uncomfortable examination of the colon, which requires a tube to be passed through the anus.

Dentists have long known the value of sound. Back in 1960, a Boston dentist, Wallace Gardner, D.M.D., wrote that music completely relieved pain in about 65 percent of the 1,000 patients he tested, while another 25 percent had enough reduced pain that they didn't need anesthesia. Some researchers speculate that distraction plays a big role in pain relief, since the music takes the patient's mind off the procedure. Others point to endorphins, claiming that music's ability to make the body release these natural painkillers is the key to easing discomfort.

Music may make you smarter, too—at least temporarily. A study from the University of California, Irvine, found that college students who listened to Mozart for 10 minutes scored higher on intelligence tests than they did after listening to relaxation tapes or sitting in silence for the same amount of time. The 36 students in the study scored an average of eight to nine points higher on tests taken immediately after listening to the music. Unfortunately, the effect lasted only 10 to 15 minutes, after which the scores returned to normal.

Sound therapy could also help people improve the quality of their workouts. A study from Louisiana State University in Shreveport concluded that listening to slow easy-listening music lowered the heart rates and allowed for longer training sessions in a group of 24 young adults. Listening to hard-driving rock music had the opposite effect; heart rates increased and workouts were shorter when the subjects tuned in to rock 'n' roll. The study's author, B. Don Franks, Ph.D., professor in the university's Department of Kinesiology, says the soft music may make the exercise seem less difficult and allow people to work out longer.

Many doctors use music with patients they have trouble communicating with, such as autistic children, older people with Alzheimer's disease and vic-

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tims of head trauma. Studies report that music can help make contact with these people when traditional therapy and verbal communication fail. For example: A six-month study from Indiana University of Pennsylvania looked at 60 elderly patients with Alzheimer's disease and found that those who listened to big band music during their daily recreation periods were more alert and happier and could recall more from the past than those who didn't listen to music.

A new branch of sound therapy, called music thanatology, seeks to ease the emotional and physical suffering of terminally ill patients. The creator of music thanatology, Therese Schroeder-Sheker, uses harp and vocal music similar to that which medieval monks used to comfort people who were dying.

SOUND ADVICE

A trained sound therapist uses a wide range of tools, including musical instruments, tapes, tuning forks, machines that release sound waves at specific frequencies and even his own voice, to help heal the body. Many hospitals, nursing homes and rehabilitation centers offer group therapy sessions as part of their treatment programs.

If you want to find a private music therapist, be sure to check for proper credentials, says Al Bumanis, director of public relations for the National Association for Music Therapy. A qualified therapist may be called either a registered music therapist (R.M.T.) or a certified music therapist (C.M.T.). Both require an undergraduate degree in music therapy from an approved program and successful completion of a clinical internship.

A therapist can also complete continuing education requirements every five years or take a test from the Certification Board for Music Therapists. Those who complete these requirements are called board-certified and are up-to-date on the trends in the field, Bumanis says. To find a music therapist in your area, contact either the National Association for Music Therapy or the American Association for Music Therapy (refer to the resource list on page 642).

Expect to spend about \$50 per hour for a session with a private therapist, Bumanis says.

If you'd like to try sound therapy on your own, experts say there are some techniques that you can use at home. Most involve using recorded music to relax or invigorate your body and mind. Part II of this book offers suggestions on pieces of music that may help you handle specific health conditions. It's important to pick music that's right for you, Dr. Halpern says. "Everyone has a different reaction to a piece of music. One person could tell you that a song helped relax him, but if it had violins in it and you don't like violins, it's not going to help you at all. It's going to feel like someone dragging fingernails

SAILING AWAY TO KEY LARGO

When it comes to relaxing music, the key is largo. That's music played at a slow tempo, called largo, which can reduce your heart and breathing rates, calm your body and help it heal itself, says Janalea Hoffman, R.M.T, a composer and music therapist based in Kansas City, Missouri.

Look for music that is played at 60 beats per minute or less. Most music is faster than that and won't help slow your heartbeat, Hoffman says. "What you are looking for is the largo section of each piece. That's the part with a beat that works." These composers are among those who have largo sections in many of their compositions: Johann Sebastian Bach, Antonio Vivaldi, George Frideric Handel and Georg Philipp Telemann. Most records, tapes and CDs list the different sections of each piece, in order, on their covers. The problem is that these slow sections last only a few minutes.

For longer listening, you will find lots of specially made tapes in music stores and can order even more from other sources. For information on mail order, refer to the resource list on page 642.

Experts recommend many of these tapes for the health conditions listed in Part II of this book. Hoffman has produced several tapes with the precise beat that can slow your heartbeat and calm your jangled nerves: *Musical Massage*, *Musical Biofeedback*, *Musical Acupuncture*, *Musical Hypnosis* and *Deep Daydreams*.

In addition, the following compositions are suggested by Steven Halpern, Ph.D., composer, researcher and author of *Sound Health: The Music and Sounds That Make Us Whole*: *Seapeace* by Georgia Kelly; *Spectrum Suite*, *Inner Peace* and *Comfort Zone*, all by Dr. Halpern; *Kuthumi* by Joel Andrews; *Dolphin Dreams* by Jonathan Goldman; *Inside* by Paul Horn; *Velvet Dreams* by Daniel Kobialka; *Light from Assisi* by Richard Shulman; *Angels of Compassion* by Iasos; and *Silk Road* by Kitaro. Dr. Halpern also suggests listening to any recordings of Gregorian chants and to *Relax with the Classics* by the Lind Institute. For information on mail-ordering any of these works, refer to the resource list on page 642.

across a blackboard." (For more information on selecting music for sound therapy, see "Sailing Away to Key Largo.")

You'll have to experiment to find out what makes you feel best. Classical music is often a good choice for music therapy, but some experts warn that it's

TURNING DOWN THE VOLUME OF LIFE

Sound may be a great healer, but noise sure isn't. Jets roaring overhead, music pounding through your apartment walls, your 20-year-old refrigerator chugging in the kitchen, even a computer or television screen whining at a frequency you can barely hear may be causing health problems, experts say.

"Noise is a hazard," says Steven Halpern, Ph.D., composer, researcher and author of *Sound Health: The Music and Sounds That Make Us Whole*. "And the scary part is that it doesn't even have to be at the point where it's hurting your ears. Even if your hearing isn't affected, the rest of you may be."

Evidence is mounting that noise pollution may be linked to high blood pressure, stress, lack of concentration, irritability and more. The case is growing so strong that former U.S. Surgeon General William H. Stewart says that "calling noise a nuisance is like calling smog an inconvenience."

Excessive noise may increase your risk of high blood pressure and other cardiovascular problems by as much as 10 percent, according to Shirley Thompson, Ph.D., associate professor of epidemiology at the University of South Carolina School of Public Health in Columbia. The reason for this isn't fully understood, but some researchers believe unpleasant sounds may trigger your body's fight-or-flight response, says Redford B. Williams, M.D., professor of psychiatry and director of the Behavioral Medicine Research Center at Duke University Medical Center in Durham, North Carolina.

When your body senses danger, it produces adrenaline and the hormone norepinephrine, which can speed up your heart and send more blood to your muscles. If you don't do anything with all of this extra body energy, it can strain your blood vessels and possibly cause high blood pressure in the long run, Dr. Williams says.

Women may be at even greater risk than men. That's because they can hear higher frequencies, such as those coming from computers and television sets, says Caroline Dow, Ph.D., associate professor of communication at the University of Evansville in Indiana. She studied 100 college-age

not perfect. "It wasn't written specifically for music therapy," explains Janalea Hoffman, R.M.T., a composer and music therapist based in Kansas City, Missouri. "Baroque music has a beat that's slow enough to slow down your heart-beat. But the beat changes during the piece, sometimes faster and sometimes

women and found that those exposed to high-frequency computer noise scored 8.5 percent worse on a standardized test than women who didn't have to contend with the sound.

So how do you nix all of this extra noise? Try wearing soft-foam earplugs that are designed to reduce sound by at least 20 decibels, says Ernest A. Peterson, Ph.D., professor emeritus at the University of Miami School of Medicine. The federal Occupational Safety and Health Administration requires workers to wear ear protection if they are exposed to noise at 89 decibels or more. For comparison, you're exposed to between 42 and 49 decibels sitting in your living room holding a conversation—and to about 130 decibels or above at a rock concert. Earplugs are available in most drugstores and shouldn't cost more than a few dollars.

You can also reduce noise in your home with a few simple tricks. Use a rake instead of a leaf blower. Let your hair dry naturally once in a while instead of using a blow-dryer. Put appliances such as washing machines on rubber cushions, which help absorb the sound. And try adding carpets and drapes, which tend to muffle sounds that rattle off bare walls and floors.

If you can't eliminate a sound, you can at least try to mask it with a more pleasant sound. Try some soft, soothing music, says psychotherapist and stress management expert Emmett Miller, M.D., of Menlo Park, California. Play it just loud enough to block whatever other sounds you hear. Or try seeking out the sounds of nature, even if you have to buy a tape that mimics rainfall on a roof or a rushing mountain stream.

One final alternative is a white noise machine, a gadget that emits sounds designed to nullify other background noise. You can put one anywhere in your house or office or carry it on the road if you have to sleep or work in a noisy environment. Dr. Halpern says these machines usually cost between \$50 and \$150 and are available in many stereo shops and department stores.

"It's better to eliminate the source of the noise," he says. "But if that's not possible, I'd rather listen to the white noise than to something more annoying."

slower. And that may make it harder for your heart to react."

Many composers now write music specifically for therapeutic use. Much of it falls into a category called New Age. This music has a carefully timed beat and a sequence of tones that is supposed to stimulate relaxation. Music stores usually

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carry a selection of New Age recordings, some of which are tailored for relaxation, improved concentration, weight loss and other purposes.

Popular music can be relaxing to some people, too. But Dr. Halpern says research shows that the typical backbeat of rock 'n' roll music might actually weaken muscle strength while people are listening to it. "Many times people will listen to music and think it's relaxing them. But what it's really doing is just distracting them," he says. "They're not getting any physical benefit. They're just trying to block out whatever is making them tense."

The best way to see if you're relaxed is to check your pulse and breathing rate, Hoffman says. "If you want, you can measure them before and after you listen to music. If they're slower after the music than before, you're getting relaxation."

Finally, experts say you should seek out natural sounds, such as leaves rustling in the breeze or wind whipping through a stand of pine trees. As humans evolved, they became accustomed to these sounds, Dr. Halpern says. "These are the sounds that soothe us, that bring us back into balance. These are what the body is designed to hear. They can help make us well." Whenever possible, he says, it's a good idea to escape the whirring computers and growling lawn mowers of everyday life and listen to the sounds of natural silence. "Just find a quiet place and take a walk. Your health will be better for it," Dr. Halpern says.