

# Listen Up!

As part of our series on the five senses, *TCL* wants you to hear all about the sense of hearing.

**T**he whirl of passing traffic. A fizzing cola. The TV droning in the next room.

It's easy to see how our sense of hearing can be relinquished to, well, background noise. But when we stop and actively listen to the sounds around us, hearing can channel our emotions more readily than its brethren senses of sight, smell, taste and touch. A rousing rendition of "Amazing Grace" moves you to tears. The incessant blaring of a car alarm ratchets up your anger—and your blood pressure. The hypnotic roiling of the ocean's waves calms your frayed nerves. And a baby's lilting giggle makes you forget your troubles for a moment. That is, of course, when you pay attention.

Cultivating your sense of hearing can add

to your enjoyment of daily life. But to truly appreciate what you hear, it's important to understand the complexities of how our bodies receive, interpret and internalize the sounds around us.

## THE MIRACLE EAR

The way we hear is like the child's game of Telephone. When something makes a noise, it sends vibrations, or sound waves, through the air. These enter your ear through the pinna (outer ear), whose swirly folds help amplify certain frequencies and help you determine if the sound is coming from in front of you or behind you.

The sound next enters your ear canal, which travels about an inch to your eardrum, a stretched membrane that is smaller and thinner than your pinkie nail. When the



sound waves hit your eardrum, they set off a chain reaction, sending the vibrations to the three smallest bones in your body—the malleus (hammer), incus (anvil) and stapes (stirrup)—which start to vibrate at the same rate. The stirrup passes the vibrations along a fluid-filled coiled tube in the inner ear called the cochlea. The vibrations set the fluid into motion, creating a wave. This wave causes thousands of hair-like nerve endings (cilia) inside the cochlea to move. The cilia's sound waves are sent through the auditory nerve to your brain, which interprets these signals as sounds you recognize.

### DON'T KNOW WHAT YOU GOT UNTIL IT'S GONE

Wondering if all those awesome rock concerts decimated your cilia? You're far from alone. According to the Hearing Loss Association of America, one out of 10 Americans suffer some kind of hearing loss—and exposure to excessive noise is responsible for approximately 30 percent of those affected. While damage can be caused by one single exposure to a loud noise, most often, loss is due to regular, prolonged exposure. Noise-induced hearing loss is often painless, progressive and permanent. Exposure to sounds

they might have hearing loss until they seek treatment. Are you one of them? Here are some signs that you might be suffering hearing loss:

- You often think people are mumbling.
- You have trouble hearing in groups.
- You cannot hear young children's high-pitched voices or people talking behind you.
- You find yourself turning up the TV volume.

Chiropractic might be the solution for those suffering from mild to moderate hearing loss. Research by Joseph Di Duro, a chiropractic neurologist and founder of the Neuropathy Treatment Centers of America, suggests that hearing in such cases can be improved or restored with a single chiropractic visit. In the study, published by the journal *Chiropractic & Osteopathy* in 2006, 15 patients who had been diagnosed with significant hearing loss volunteered for a routine spinal adjustment. Of the 15, six had their hearing restored completely, seven showed improvement and two had no change. According to Di Duro, the most significant improvements occurred in cases in which the patients needed it most—in the lower-decibel levels of daily conversation. While this study is less than conclusive, it gives those who suffer from hearing loss reason to be cautiously optimistic.

Di Duro's study is, however, steeped in the very foundation of Chiropractic. In 1895, D.D. Palmer gave the first chiropractic adjustment to Harvey Lillard, the owner of a janitorial company who had been suffering from hearing loss for 17 years. Lillard had told Palmer that he had lost his hearing when he was in a stooped position and heard something "pop" in his spine. "According to write-ups, D.D. would always slap him on the back when he was in his presence—and Lillard told him there was some improvement in his hearing after he did this," says Rick Sherkel, an associate professor at Life University in Marietta, Ga. Palmer examined Lillard and found a lump on the spine between his shoulders. Recognizing it as a badly misaligned vertebra, he surmised that since the damage had occurred when Lillard went deaf, restoring the vertebra to its proper position might also restore his hearing. Sherkel references Palmer's account of the adjustment in "The Chiropractor's Adjuster": "I held pressure on the bump. This did not work. So, I wacked it, and two minutes later, Harvey could hear a watch ticking a foot-and-a-half from his ear."

Stephen J. Press, a chiropractor in Englewood, N.J., is a modern-day believer. "About 25 years ago, I had a hearing-impaired gentleman in my office who wore hearing aids," he says. "When I completed the first adjustment, with a

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Back in the day, did your mother warn you not to jack up the sound on your Walkman—or you'd lose your hearing? And today, do you guiltily remember this caveat as you spin up the volume on your iPod while exercising? Well, Mother was right: Loud noises can irrevocably destroy your hearing. Each cilia has a small patch of stereocilia sticking out of its top. Sound causes the stereocilia to rock back and forth—but if the sound is too loud, it can bend or break the stereocilia, which causes the cilia to die. When cilia die, they do not grow back, causing conditions such as tinnitus (ringing in the ears) or hearing loss. Since the high-frequency hair cells are the ones most easily damaged, people with hearing loss resulting from loud sounds often experience problems hearing high-pitched noises like crickets or birds chirping.

more than 85 decibels (e.g., a motorcycle) for more than eight hours or more than 100 decibels (those rock concerts, if you were close to the amplifiers) for 15 minutes can cause some hearing damage, according to the House Research Institute, an organization that advocates a better quality of life through improved hearing. The Institute recommends that you take 15-minute "quiet" breaks to give your ears a rest when you're in noisy environments.

As we age, our ear structure deteriorates; the eardrum often thickens, and the bones of the middle ear and other structures are affected. Around age 50, our acuity of hearing might decline due to changes in the auditory nerve or impacted earwax, which increases as we age.

A recent study found that it takes adults an average of seven years from the time they think

louder-than-usual audible release, it became apparent that ordinary conversation was uncomfortable for him. He kept telling me not to yell. I had him turn down his hearing aids until he was comfortable. He ended up turning them completely off.”

### “HEARING” BEYOND THE EAR

A healthy adult is capable of hearing an audible frequency between 20 Hz (e.g., a heartbeat) and 20,000 Hz (e.g., a high-pitch whistle). As

conditions such as sleep disorders, high blood pressure, anxiety and chronic pain.

“Sound waves put things back into balance. A good example is when you’re listening to music that you like—it tends to put you in a better mood,” says David Lee, D.C., of Woodstock, Ga. Lee works with a group in Atlanta that practices cymatherapy, a technique that combines sound therapy with magnetic therapy. “With cymatherapy, we can predict which frequencies or tones can create healing in different areas of

### LEARNING HOW TO LISTEN

Hearing is integral to the practice of mindfulness, a stress-reduction technique centered on using the senses to pay attention to the present moment without judgment. “Hearing is very important in mindfulness meditation,” says Elizabeth J. Coleman, a mindfulness specialist in New York City. “The progression is: mindfulness of breath, of body, then of hearing. Your eyes are closed, and the one sense you are focusing on is hearing.” Coleman offers these suggestions for enhancing your sense of hearing through mindfulness strategies:

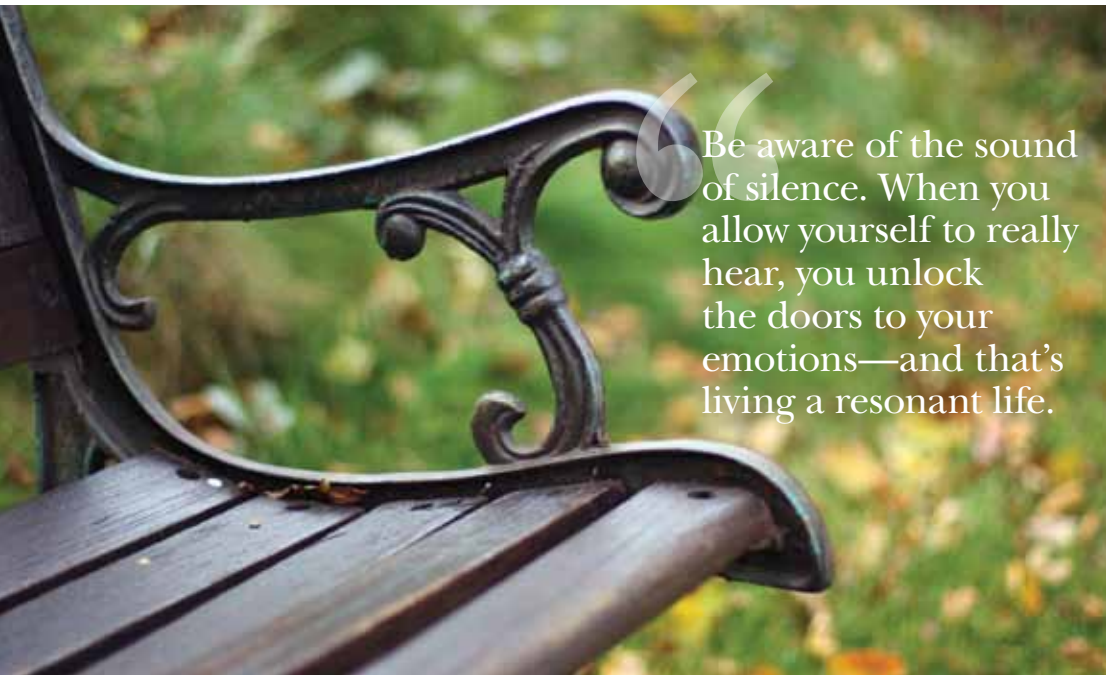
First, start with a “beginner’s mind.” “This means trying to hear things as you might have for the first time, when you were a child,” she says.

Pay attention to the sounds around you right now, whether they emanate from inside your body, in the room or outside. (If you’re easily distracted, close your eyes to focus until you can learn to tune out your other senses.)

Let those sounds just come to you, paying attention to the quality of the sound without labeling it or judging it. “Take, for example, traffic. What are you actually hearing: a hissing sound or a smooth sound?” Coleman says. “Consider the annoying sounds like honking or a dog barking: Can you hear them as they are without bringing the judgment to them? When you just let the sounds come and go, you’ll see how they arise and subside. There’s a wave to sound, a flow.”

While you will notice the noise, also be aware of the sound of silence. “Hearing silence can be even more interesting than the sounds themselves,” she says. “People don’t appreciate sound, but even more, they don’t appreciate the silence between sounds.”

Hearing brings our world to life, making it more exciting, engaging and full. Yet it’s something that we so often take for granted—until it’s gone. Our sense of hearing rouses our emotions, connects us to others and builds relationships. Without being able to hear, we lose that vital connection to others, which can lead to a sense of isolation, anxiety and depression. Actively listening to the sounds around us is an easy way to instantly improve our quality of life. So, go ahead, allow the goosebumps to rise as you hear an owl hoot as night closes in. Cry to Vivaldi. Or smile at the sound of children playing on the swings as you pass by a playground on your lunch break. When you allow yourself to really hear, you unlock the doors to your emotions—and that’s living a resonant life. **TCL**



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we go about our day, we move through an environment of sound waves that we don’t hear—in the traditional sense anyway—but which nonetheless can have a profound effect on our health and well-being. Our bodies are capable of absorbing sound that is outside our normal range of hearing, picking up frequencies like microwaves, cell phones and dog whistles (Fido can hear up to 60,000 Hz).

Our body parts, too, resonate their own frequencies. Cells, organs and tissues all respond positively to exterior sounds that vibrate in harmony with them. The practice of sound therapy employs this concept that the body “hears” and responds to sound as a way to restore balance to the body and mind, allowing the diseased or distressed parts to heal without medicine. In sound therapy, the troubled spots are exposed to specific frequencies that will help them restore their innate resonant frequency. The therapeutic modality has gained increased acceptance as a complementary practice and is used to help with

the body.” Lee says therapists use a variety of instruments to affect change within the body’s vibratory pattern, including voice, music, induction lasers, biofeedback machines, tuning forks—even chanting. “It can even take you on a journey,” he says, noting that guided imagery is yet another form of sound therapy.

“There’s an effect that sound has on matter, and sound therapy affects us physiologically and neurologically,” says June Wiedner, a chiropractor from Ridgecrest, Calif., who chronicles her research on the resonance of the spine and the vibrational therapy called “bone toning” in her book “Song of the Spine.” “Each vertebra has its own tone and frequency, and by using tuning forks, I found I could restore the harmonic resonance of the spine. Toning the bones actually tunes the nervous system,” says Wiedner, who recently developed the Song of the Spine BoneToner, a hand-held frequency generator that takes the place of traditional tuning forks for bone toning.