HEARING

If there's ringing in your ears, you're not alone

Increase in the number of tinnitus sufferers is linked to the aging population and the use of personal music players

MELINDA BECK
WALL STREET JOURNAL STAFF

Some people hear a high-pitched buzzing sound. Others describe it as a ringing, roaring, hissing, chirping, whooshing or wheezing. It can be high or low, single or multi-toned, an occasional mild annoyance or a constant personal din.

Tinnitus – whose Latin root means "to jingle" – is defined as the perception of sound when no external sound is present. It usually accompanies hearing loss, and while no one knows for sure what causes it, many experts believe that when people lose the ability to hear in certain frequencies, the brain fills the void with imaginary or remembered noise. "Those auditory centres are just craving input," says Rebecca Price, an audiologist who treats tinnitus at Duke University Health System in Durham, N.C.

Some 50 million Americans at least occasionally experience tinnitus. And 16 million U.S. adults had it frequently in the past year, according to a new study by the Centers for Disease Control and Prevention. Some two million find it so disturbing that it interferes with sleep, work, concentration and family relationships. The Tinnitus Association of Canada estimates that the condition afflicts 360,000 Canadians.

The incidence is rising these days, linked to the aging population and to personal music players cranked up high. "Now we have 12-year-olds complaining of tinnitus. We never had that previously," says Jennifer Born, a spokeswoman for the American Tinnitus Association, a non-profit education and advocacy group.

Tinnitus is also the number-one service-related disability among veterans from Afghanistan and Iraq, due to brain injuries from explosive devices.

While many sufferers are told there is no cure for their tinnitus, treatment options are proliferating. And brain-imaging studies are shedding new light on how some peoples' brains are wired with unusual connections between the auditory cortex that governs hearing and the centres for attention, emotion and executive function. "We have always wondered why some people find tinnitus so distressing. Now we can see it," says Jay Piccirillo, an otolaryngologist at Washington University in St. Louis who is studying a treatment for tinnitus that targets magnetic pulses at patients' brains to redirect abnormal connections.

The first step in treating tinnitus is usually to determine if a patient has hearing loss and to identify the cause, which can run the gamut from ear-wax buildup to infections, accidents, aging, medication side-effects and noise exposure.

"At least half of the time, if we can reduce the hearing loss, we can dramatically reduce the tinnitus or make it so that the patient doesn't care," says Sujana Chandrasekhar, an otolaryngologist in New York and chairman-elect of the American Academy of Otolaryngology-Head and Neck Surgery.

An estimated 360,000 Canadians suffer from tinnitus. ISTOCKPHOTO

Surgery may be helpful in some cases. Frank Scalera, a 42-year-old pipefitter in New York, had tinnitus ever since a firecracker blew out his eardrum at age 15. Ten surgeries have helped restore his hearing and reduce the ringing he's heard for 30 years.

About 40 per cent of tinnitus sufferers find relief with a regular hearing aid that restores sound in lost frequencies, so the brain doesn't need to fill in the void. But some also have hyperacusis – in which normal sounds seem unbearably loud – so a hearing aid may be uncomfortable.

Some tinnitus treatments use sound therapy – soothing external sounds to drown out the ringing within. Some people find relief by running a fan, a humidifier or even a radio tuned to static, especially at night when tinnitus is often most noticeable and frequently disrupts sleep.

Several brands of hearing aids also mix in soft "shhhsssing" tones to mask tinnitus sounds and help users relax. Another variation is the Oasis device by Neuromonics Inc., which looks like an MP3 player but plays baroque and new age music customized to provide more auditory stimulation in patients' lost frequencies as well as a "shower" sound to relieve the tinnitus.

For some patients, it's not the noise itself that's so distressing, but the anxiety that comes along with it. Researchers long theorized – and have now seen on brain scans – that the limbic system, the brain's primitive fight-or-flight response, is highly activated in some tinnitus sufferers. Some patients find that antidepressants or anti-anxiety drugs can bring some tinnitus relief.

The new magnetic pulse treatment – called repetitive Transcranial Magnetic Stimulation (rTMS) – seeks to break the tinnitus cycle in a different way. Researchers first conduct scans of patients' brains to identify candidates. In people with severe tinnitus, "We notice that communication between parts of the brain responsible for hearing and maintaining attention are abnormal," says Dr. Piccirillo. A magnetic coil placed over auditory cortex outside the head sends pulses through the skull and attempts to disrupt the faulty communications.

One of the most effective treatments is cognitive behavioural therapy, which treats patients' emotional reactions to tinnitus, not the noise itself. "The goal is to make your tinnitus like your socks and shoes – you're wearing them, but you're not actively thinking about them," says Dr. Chandrasekhar.

© 2010 Dow Jones & Co. Inc.