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# Hearing restored after stapes surgery

Sometime after turning 30, **Lori Pinedo** began to experience some hearing loss.

“I could hear high tones but not low tones. These were like a mumble to me,” she says. “I learned to read lips, but as a radiology imaging tech, during procedures the people I work with have to wear face masks. You can’t read lips when they’re under a mask. I was sick and tired of not being able to hear.”

Pinedo decided to seek help at the Otolaryngology —Head & Neck Surgery Center, where she learned she had a condition called otosclerosis.

Otosclerosis is characterized by an abnormal bone growth in the middle ear that prevents the stapes, one of the hearing bones, from working properly, leading to hearing loss. For some people, this loss may become severe. For Pinedo, the solution to her hearing loss was either a hearing aid or a stapedotomy—surgically bypassing the stapes with a synthetic hearing bone.

“The simple surgery sounded better than having to wear a hearing aid for the rest of my life,” Pinedo says. She had surgery on her left ear the summer of 2004 and the right in October 2005. Twelve months is recommended between surgeries to make sure there are no complications.

“After surgery in the left ear, I could tell immediately that my hearing was better. The right ear surgery wasn’t as dramatic a change, but it got better,” she says.

Not all forms of hearing loss are treated as easily as otosclerosis. Hearing loss due to deterioration of the inner ear is currently treated with hearing aids or in severe cases, a cochlear implant.

“Hearing aids are not a perfect technology,” says **Dr. Cliff Hume**, UW assistant professor of otolaryngology, and the surgeon who performed

Pinedo’s ear surgery. “While they may amplify and filter sound, they cannot compensate for the distortion caused by damage to the inner ear.”

Research is currently underway and early-stage experiments are looking at the possibility of regenerating hair cells in the damaged part of the ear. “We’re hoping to find out if replacing hair cells can recover the clarity as well as sensitivity of normal hearing,” Hume says.

Dr. Edwin Rubel, scientific director of the Virginia Merrill Bloedel Hearing Research Center located behind UW Medical Center, has been working on hair cell regeneration for almost two decades. He leads the \$1.5 million Hearing Regeneration Initiative, a collaborative effort by a group of UW investigators, including Dr. Hume, that is tackling this challenge from many angles.

Cochlear implant design research is also ongoing to better reproduce normal hearing. “One goal is to improve the efficiency and specificity of cochlear implants by attracting the processes of the hearing nerve directly to the stimulating electrodes in the inner ear,” according to Hume. UW mechanical engineers are working with researchers to modify existing cochlear implants with small microphone-like devices that will deliver acoustic and electrical signals to the inner ear.

“There was a chance that the surgery wouldn’t work for me,” Pinedo says. “The results were worth the risks. I’m very happy and can hear extremely well in both ears. I would do it again in a heartbeat.”

**To make an appointment for issues relating to hearing or hearing loss, call 206-598-4022.**

**For general information about the Otolaryngology/Head & Neck Surgery Center, go to [www.uwENT-headneck.org](http://www.uwENT-headneck.org).**



Dr. Cliff Hume