

Facts & Figures:

Older Adults & Hearing Implants in the United States

Prevalence: Hearing Loss in Older Adults

There are more than 40 million Americans over the age of 65, representing 13% of the U.S. population. More people were 65 years and over in 2010 than in any previous census. Between 2000 and 2010, the population 65 years and over increased at a faster rate (15.1%) than the total U.S population (9.7%).¹

Almost 50 million Americans have hearing loss in at least one ear. Hearing loss becomes more prevalent with age: hearing impairment occurs in about 18% of American adults between ages 45 and 54, 30% of adults between ages 65 and 74, and 47% of adults ages 75 and older.²

Hearing Implants and Older Adults

Despite the high prevalence of hearing loss and many treatment options available, only **10-20%** of people with hearing loss have ever used hearing aids, and 20-29% of patients who have used hearing aids at some point stop using them. Patients often experience dissatisfaction with hearing aids due to their appearance, background noise, discomfort, difficulty handling, and unmet expectations regarding effects on hearing impairment.⁴

When hearing loss progresses beyond the ability of hearing aids to produce meaningful benefit, a cochlear implant (CI) provides an alternative option by stimulating the auditory nerve and nervous system directly. Estimates indicate that approximately **150,000** adults over 70 in the United States likely have hearing loss of a severity that would meet cochlear implantation candidacy criteria. Research has shown that older adults who receive cochlear implants often successfully regain their lost sense of hearing.⁵

Age-related hearing loss is called presbycusis (PRES-be-CUE-sus); this type of hearing loss is typically symmetrical, usually begins in the higher frequencies, and is followed by gradual and progressive hearing loss.³

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Scientists have seen a great deal of success among older patients who receive cochlear implants, particularly those who are implanted earlier in their hearing loss experience.^{6,7} Scientists believe implantation of older adults earlier might promote better results because of relatively better neural plasticity, shorter duration of deafness, and less neural degeneration.

Older recipients have been shown to gain a substantial benefit from cochlear implants in terms of quality of life, as demonstrated by health status, success in the common activities of daily living and perceived satisfaction after cochlear implantation.^{8,9} Older adults who lost their hearing later in life obtained significant speech perception benefits from CIs, although differences in speech outcomes were seen between younger recipients and those implanted after age 70.¹⁰ Older adults have a similar learning curve to younger adults, and in speech tests in quiet they show a comparable performance. However, their performance is statistically significantly lower in noisy surroundings.¹¹

In addition to regaining the sense of hearing, there are many potential benefits of cochlear implants that are particularly relevant to older adults, such as maintaining independence, use of the telephone and participating in daily activities. Social reintegration and related emotional aspects of maintaining connections also benefit older CI patients.^{12,13} Older recipients with long-term deafness experience also a greater improvement in quality of life after implantation. Regardless of poorer audiologic outcomes compared to younger adults, the expected daily functional benefits of cochlear implantation are high.¹⁴

Cochlear implantation is well tolerated across all adult age groups with a relatively low risk for adverse surgical events or device malfunction.¹⁴ Studies indicate that the safety profile of cochlear implantation in an older population is comparable to that of younger adults and children. Concerns for increased postoperative complications in recipients of advanced age do not need to be a primary consideration when determining CI candidacy.¹⁶ CI surgery for patients 79 years or older was well tolerated. Recipients benefited greatly from the device with improved hearing. CI should not be denied older individuals who are otherwise in good health.¹⁷

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For more information about hearing implants and older adults, including candidacy criteria, visit www.medel.com.



Hearing Loss, Age and Cognitive Decline

In 2011, researchers from Johns Hopkins University published ground-breaking research definitively connecting hearing loss and cognitive decline in older adults. The NIH-funded study, led by Dr. Frank Lin, found that hearing loss was independently associated with dementia. The researchers also found that the risk for dementia increased exponentially with hearing loss severity. According to the researchers, these findings could lead to new ways to combat dementia, a condition that affects millions of people worldwide and carries heavy societal burdens.^{18,19}

More recently, in 2013, Dr. Lin and his team published data showing that cognitive problems were appearing approximately **30-40% faster** in older adults with mild hearing loss, as compared to their peers without hearing loss.²⁰

Although the reason for the link between the two conditions is unknown, the investigators hypothesize that a common pathology may underlie both or that the strain of decoding sounds over the years may overwhelm the brains of people with hearing loss, leaving them more vulnerable to dementia. They also speculate that hearing loss could lead to dementia by making individuals more socially isolated, a known risk factor for dementia and other cognitive disorders.^{21,22} Although there are no data to support that hearing technology will mitigate dementia, researchers are seeking answers to this question.²³

REFERENCES

- 1 U.S. Census. <http://www.census.gov/prod/cen2010/briefs/c2010br-09.pdf>
- 2 Hearing Health Foundation. <http://hearinghealthfoundation.org/statistics?gclid=CpMfsNbt7LsCFbIDogodBhEA-w>
- 3 National Institutes of Health. <http://www.nidcd.nih.gov/health/hearing/pages/presbycusis.aspx>
- 4 National Institute of Health. <http://www.ncbi.nlm.nih.gov/books/NBK53869/>
- 5 Lin FR, Chien WW, Li L, Clarrett DM, Niparko JK, Francis HW. "Cochlear implantation in older adults." *Medicine (Baltimore)*. 2012 Sep;91(5):229-41. <http://www.ncbi.nlm.nih.gov/pubmed/22932787>
- 6 Lin FR, Chien WW, Li L, Clarrett DM, Niparko JK, Francis HW. "Cochlear implantation in older adults." *Medicine (Baltimore)*. 2012 Sep;91(5):229-41.
- 7 Budenz CL, Cosetti MK, Coelho DH, Birenbaum B, Babb J, Waltzman SB, Roehm PC. "The effects of cochlear implantation on speech perception in older adults." *J Am Geriatr Soc*. 2011 Mar;59(3):446-53. doi: 10.1111/j.1532-5415.2010.03310.x.
- 8 Di Nardo W, Anzivino R, Giannantonio S, et al. "The effects of cochlear implantation on quality of life in the elderly." *Eur Arch Otorhinolaryngol*. 2013 Feb 15. PMID: 23411946
- 9 Vermeire K, Brokx JP, Wuyts FL et al. "Quality-of-life benefit from cochlear implantation in the elderly." *Otol Neurotol*. 2005 Mar;26(2):188-95.
- 10 Budenz CL, Cosetti MK, Coelho DH, Birenbaum B, Babb J, Waltzman SB, et al. "The effects of cochlear implantation on speech perception in older adults." *J Am Geriatr Soc*. 2011 Mar;59(3):446-53.
- 11 Lenarz M, Sönmez H, Joseph G, Büchner A, Lenarz T. "Cochlear Implant Performance in Geriatric Patients." *Laryngoscope*. 2012; PMID: 22539093
- 12 Di Nardo W, Anzivino R, Giannantonio S, et al. "The effects of cochlear implantation on quality of life in the elderly." *Eur Arch Otorhinolaryngol*. 2013 Feb 15. PMID: 23411946
- 13 Vermeire K, Brokx JP, Wuyts FL et al. "Quality-of-life benefit from cochlear implantation in the elderly." *Otol Neurotol*. 2005 Mar;26(2):188-95
- 14 Ramos A, Guerra-Jiménez G, et al. "Cochlear implants in adults over 60: a study of communicative benefits and the impact on quality of life." *Cochlear Implants Int*. 2013; PMID: 23510755
- 15 Carlson ML, Breen JT, Gifford RH, Driscoll CL, Neff BA, Beatty CW, et al. "Cochlear implantation in the octogenarian and nonagenarian." *Otol Neurotol*. 2010 Oct;31(8):1343-9.)
- 16 Chen DS, Clarrett DM, Li L, et al. "Cochlear implantation in older adults: long-term analysis of complications and device survival in a consecutive series." *Otol Neurotol*. 2013 Sep;34(7):1272-7.
- 17 Lundin K, Näsval A, Köbler S et al. "Cochlear implantation in the elderly." *Cochlear Implants Int*. 2013 Mar;14(2):92-7
- 18 Lin FR, Metter EJ, O'Brien RJ, Resnick SM, et al. "Hearing loss and incident dementia." *Arch Neurol*. 2011 Feb;68(2):214-20.
- 19 Lin FR, Yaffe K, Xia J, et al. "Hearing loss and cognition among older adults in the United States." *JAMA Intern Med*. 2013 Feb 25;173(4):293-9; Lin FR. *J Gerontol A Biol Sci Med Sci*. 2011 Oct;66(10):1131-6.
- 20 Lin FR, Yaffe K, Xia J, et al. "Hearing Loss and Cognitive Decline in Older Adults." *JAMA Intern Med*. 2013 Feb 25;173(4):293-9.
- 21 Lin FR, Metter EJ, O'Brien RJ, Resnick SM, et al. "Hearing loss and incident dementia." *Arch Neurol*. 2011 Feb;68(2):214-20.
- 22 Lin FR, Yaffe K, Xia J, et al. "Hearing Loss and Cognitive Decline in Older Adults." *JAMA Intern Med*. 2013 Feb 25;173(4):293-9.
- 23 Lin FR, Chien WW, Li L, Clarrett DM, Niparko JK, Francis HW. "Cochlear implantation in older adults." *Medicine (Baltimore)*. 2012 Sep;91(5):229-41.

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