

Dear Colleagues,

This special issue of the *Journal of Hearing Science* is devoted to partial deafness treatment (PDT). The issue coincides with a special occasion: the opening of the World Hearing Center – a modern facility dedicated to solving problems associated with the diagnosis, surgery, and postoperative rehabilitation of hearing in partial deafness subjects. The occasion marks 10 years since this treatment was introduced in 2002, when surgery on the first patient with partial deafness was done. The patient had normal hearing at low frequencies only, and after a cochlear implant their hearing was complemented by electronic processing and electrical stimulation for medium and high frequencies.



After the successful operation in 2002, and a number of further successful surgeries, the first operation on a child with this disorder was done in 2004. The surgical strategy that I proposed involves six steps and uses the most anatomically straightforward and safest access to the inner ear through the round window. Over the years, it has proven very effective, and has opened the way to an entirely new group of patients – those in which electrical stimulation is used to complement preoperatively normal hearing.

Other workers have also tried to preserve the existing residual hearing in varying degrees by using a combination of electrical and acoustic stimulation. Efforts to combine hearing aids and implants have been made in Europe (C. von Ilberg), the USA (B. Gantz), and elsewhere, but by different means. Initially it was done separately in both ears and then, after the introduction of appropriate systems like Duet (Med-El, Innsbruck, Austria) and Hybrid (Cochlear Ltd., Sydney, Australia), in the one ear. Reports of the therapeutic success of the first successful operations, and of those ensuing, were presented to various international conferences, notably the series of alternating European and American meetings known as the Hearing Preservation Workshops. These meetings have influenced the development of new electrode technology, and there are now extremely sensitive types by Med-El (medium, standard flex, flex, and 28 mm EAS flex) and by Cochlear (SRA and currently CI 422).

All this led to a growth in our capabilities and a growth in the opportunities available for the hearing impaired. The challenge is to supplement normal hearing by electric stimulation over an increasing range of frequencies, to provide electric and acoustic stimulation to those having a wide range of preoperative residual hearing, and to provide the best to those who need electrical only stimulation. In all cases, the idea is to preserve any existing (but non-functional) preoperative hearing by keeping the structure of the inner ear intact.

In 2009, after gathering experience from over 700 patients, I presented a new classification scheme of partial deafness treatment, which was somewhat broadened in 2010. The scheme covers almost all partial and deep hearing impairments in children and adults and is called the Skarzynski PDT classification. The aim of this scheme is to give a formal structure for the analysis of the operational material, taking into account diverse groups of patients. The idea is to measure both the early and late results of preoperative hearing preservation, and of postoperative hearing rehabilitation, as measured by the level of speech understanding in open and closed sets.

After 10 years of treating partial deafness, with varying degrees of preoperative hearing, we now have the world's largest group of 1512 operated patients. Preservation of hearing and structure of the inner ear was obtained in 97.6% of operated adult patients and in 99.2% of operated children. These results show how very good the prospects are for partial deafness treatment.

The launch of the new facilities at the World Hearing Center further supports this work by creating a new organizational capacity. The World Hearing Center is dedicated to the treatment of various hearing impairments, and its formation opens up an extremely promising perspective for new methods of treatment for a constantly growing group of patients.

With kind regards and greetings,
Prof. Henryk Skarzynski, M.D., Ph.D., Dr.h.c.