# Neuro 2 – latest multicenter study shows +10% audiological performance[1]

*Comparison of Patient Satisfaction and Audiological Performance between Neuro One and Neuro 2 sound processors (Multicentric prospective sound processor upgrade study, Neuro One to Neuro 2)*
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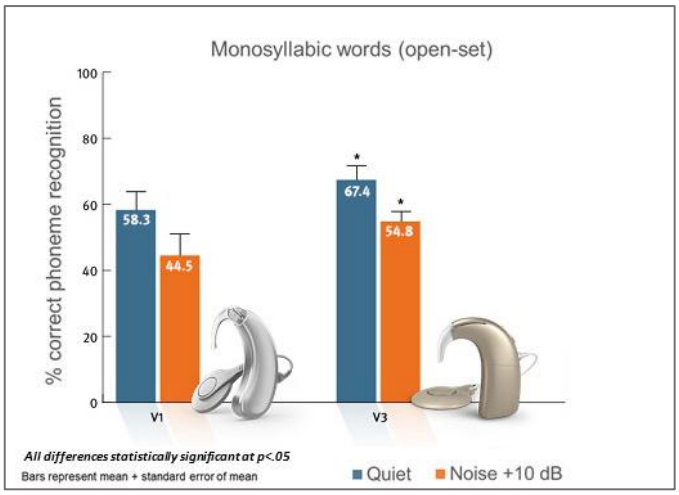
*Abstract: The Neuro 2 cochlear implant sound processor represents the latest high-end offering on the cochlear implant market. The recent multicentric upgrade study led by Prof. Vincent in Lille, France, shows the excellent audiological performance of the Neuro 2, with +10% speech recognition improvement in both quiet and noise. These admirable results are due to the activation of advanced sound processing features in Neuro 2, such as Voice Track and Speech Omni. Neuro 2 also exhibits excellent performance compared to recent studies performed in similar conditions[4].*

**Study design**
The multicenter prospective study compared audiological performance and patient satisfaction between Neuro One and Neuro 2 sound processors. Forty-four adults with an average age of 57 years and an average hearing deprivation of 23 years took part in the test th at measured monosyllabic word intelligibility in an open set – one of the most challenging audiological tests for CI users. Patients were firstly tested using Neuro One (V1). They were tested using Neuro 2 (V2) at the upgrade visit and again at a three-month follow up visit (V3).

**Neuro 2 outcomes: +10% improvement in quiet and noise**
At the follow up visit (V3), the test in noise (+10 dB SNR) with Neuro 2 showed a significant improvement of +10% in monosyllabic word recognition compared to V1 (see blue bars in the graph below). The influence of noise on speech perception remained modest, which demonstrates Neuro 2's particularly good performance in challenging environments. The same improvement was also observed in quiet (see orange bars in the graph below).




**Seech Omni directionality – designed to be closer to natural hearing**
One of the reasons behind the +10% improvement seen with Neuro 2 is Speech Omni, an exclusive Oticon Medical light directional technology optimized to provide users with high sound quality and clarity, especially in situations with moderate levels of noise, which we know is where CI users spend over 70% of their time[2].
A recent evaluation with 35 patients[3] demonstrated a statistically significant preference for Speech Omni over standard surround modes. Patients mentioned preferring Speech Omni for voice quality and in cases where speech understanding is particularly challenging.

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**High performing, highly competitive**

The results of the present study confirm previous findings and place Neuro 2 among the best performing sound processors, even more so when the study is compared to recent similar studies in terms of cohort size, patient age and length of hearing deprivation, and test type and conditions[4].

The excellent results of the Neuro 2 sound processor should be considered together with the latest results of the Neuro Zti implant. These results show that it is:

- One of the most reliable implants in the field, with 99.96% cumulative survival at 3 years[5]
- An extremely safe solution for use during MRI exams at 1.5 Tesla with the magnet in place, as users reported no pain or magnet dislocation[6]
- A system that provides excellent audiological outcomes in challenging environments[1], when compared to other similar recent studies conducted with latest generation devices.

*1-Vincent et al, Comparison of Patient Satisfaction and Audiological Performance between Neuro One and Neuro 2 sound processors, manuscript submitted. 2- Bosman AJ, Kruyt IJ, Mylanus EAM, Hol MKS, Snik AFM. (2018). Evaluation of an abutment-level superpower sound processor for bone-anchored hearing. Clin Otolaryngol. doi: 10.1111/coa.13084 3- Caruso A., Negri M., Zanetti D., Guida M., Dallaturca E., Sanna M. - Neuro users say it: the everyday sounds better with speech-omni – Oticon Medical white paper, 2018 4-Hey M., Wesarg T, Mewes A, Helbig S, Hornung J, Lenarz T, Briggs R, Marx M, Ramos A, Stöver T, Escudé B, James CJ, Aschendorff A. Objective, audiological and quality of life measures with the CI532 slim modiolar electrode, Cochlear Implant International 2018 5-Oticon Medical Reliability Report 2018. Data as of June 30th 2018 6- Todt, I., Rademacher, G., Grupe G., Stratmann A., Ernst, A., Mutze S., Mittmann P. (2018). Cochlear implants and 1.5 T MRI scans: the effect of diametrically bipolar magnets and screw fixation on pain. Journal of Otolaryngology - Head and Neck Surgery (2018) 47:11*

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