

COMPARATIVE PERFORMANCE BETWEEN TWO HEARING AID PRESCRIPTIONS, AND BETWEEN AN ADAPTIVE DIRECTIONAL MICROPHONE SYSTEM AND A MULTI-BAND NOISE REDUCTION SYSTEM, IN A DIGITAL HEARING INSTRUMENT

Kevin C. P. Yuen¹

Anna C. S. Kam²

Polly S. H. Lau³

¹Institute of Human Communicative Research & Division of Otorhinolaryngology, Department of Surgery, The Chinese University of Hong Kong, China

²Phonak Hong Kong Hearing Centre

³Division of Speech and Hearing Sciences, The University of Hong Kong

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ABSTRACT

The amplification outcomes of two hearing aid prescriptions: NAL-NL1 and Digital Perception Processing (DPP), of nine moderate to moderately-severe hearing-impaired adults were compared in the same digital hearing instrument. NAL-NL1 aims at optimizing speech intelligibility while amplifying speech signal to a normal overall loudness level or at a lower level if that improves speech intelligibility (Dillon, 1999); whereas DPP focuses on restoring loudness based on normal and impaired cochlear excitation models (Launer & Moore, 2003). DPP gave better sentence recognition performance than NAL-NL1 mainly in the signal-front/ noise side condition, whereas the two prescriptions gave similar performance in the signal-front / noise-front condition. Subjective evaluations by APHAB and sound quality paired comparisons did not give conclusive results between the two prescriptions. In each hearing aid prescription, the ability of the hearing aid to combat noise was evaluated by a sentence-in-noise test among three conditions: (1) adaptive directional microphone (DAZ), (2) multi-band noise reduction system (FNC), and (3) combination of (1) and (2) (DAZ+FNC). In signal-front and noise-side evaluation, DAZ and DAZ+FNC gave better performance than FNC in nearly all subjects; whereas in signal-front and noise-front evaluation, the conditions were not different.

Presentations

Yuen, K. C. P., Kam, A. C. S., Lau, P. S. H. Noise Reduction vs. Adaptive Directional Microphone in Hearing Aid. Paper presented at the *17th American Academy of Audiology Annual Convention, Washington D. C., 29 March - 2 April, 2005.*

Yuen, K. C. P., Kam, A. C. S, Lau, P. S. H. Lau. (2004). Comparison of objective and subjective outcomes of speech intelligibility maximizing (NAL-NL1) and normal loudness restoration (Digital Perception Processing) hearing aid prescriptions, in a digital hearing instrument. Paper presented at the *XXVIIth International Congress of Audiogoy, Phoenix, 26-30 Sep, 2004.*