Harald Bonsel

Bonsel Hearing Aids

Loudness in hearing aid fitting – an overview

Loudness is a central concept in psychoacoustics and has been the subject of extensive research for several decades. While its relevance in science has long been established, its application in hearing aid fitting has become significantly more important in recent years. The aim of loudness-based fitting strategies is to tailor hearing aid fitting to the individual loudness perception of each user, rather than focusing exclusively on formula-based values in conjunction with interviews.

Historically, the use of loudness in hearing aid fitting is not new. Methods such as loudness scaling were described over 50 years ago, but for a long time they did not become established in audiological routine practice.

Advances in digital signal processing, psychoacoustic modelling and automated measurement technology have led to the emergence of a new generation of loudness-based methods in recent years. These methods enable more precise measurement of subjective loudness perception and its integration into hearing aid programming.

This article provides a systematic overview of the loudness-based fitting methods currently in use. In addition to presenting their theoretical foundations, it discusses examples of their implementation in current measurement systems, methodological differences, advantages and limitations. Finally, it discusses the practical relevance of these methods in audiological care and possible developments in future fitting practice.