

Abstract EFAS/DGA 2007

The relationship between tone- and speech-audiometry based assessments of hearing loss

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The main basis for the assessment of a reduction in earning capacity (Minderung der Erwerbsfähigkeit, MdE) due to hearing loss in Germany is the "percentage hearing loss" based on the speech audiogram in silence (Königsteiner Merkblatt, 1996). In some cases the tone audiogram is used in addition to the speech test or as the only basis for the assessment.

This contribution deals with the questions whether it is fair to use the tone audiogram instead of the speech audiogram and - in case of significant differences between both approaches - how these differences could be explained and solved.

The percentage hearing losses based on the speech audiogram were computed for 31 adults with different kinds of hearing disorders using both parts of the Freiburg speech test as well as the combination of the Freiburg number test and the monosyllable rhyme test by v. Wallenberg and Kollmeier (1989). In addition, the percentage hearing losses based on the tone audiogram were calculated using the tables introduced by Röser (1973, 1980, Drei- und Vier-Frequenz-Tabelle).

As expected, the tone audiogram data result in a higher amount of percentage hearing loss than the speech audiogram data for most cases. However, the variability across subjects is very large, so that significant differences between the two approaches would significantly influence the assessment of a reduction in earning capacity in particular cases. A detailed analysis shows that listeners with large differences between tone- and speech-audiometric results are mainly characterised by relatively low speech reception thresholds in the Freiburg number test.

To investigate these findings in more detail, a further data set of 145 listeners is analysed in order to explain these discrepancies and to propose methods to overcome this problem.

Literatur:

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