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The importance of temporal fine structure coding for speech perception in listeners with sensorineural hearing impairment as compared to normal hearing listeners

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Physiological data suggest that the neural representation of temporal fine structure could benefit speech recognition in normal hearing listeners. Conversely, it has been hypothesized that deficits in the encoding of fine structure could play a role in the poor speech perception of patients with sensorineural hearing loss, particularly for speech presented at moderate to high levels and speech presented in background noise. Experiments on the psychoacoustical abilities of adults with hearing loss have shown a correlation between performance on tasks thought to rely on fine structure cues (e.g., low rate FM detection) and ability to understand speech or lowpass filtered speech, lending support to this hypothesis. This talk will review these data, as well as the mechanisms proposed to account for this result, and will consider the relation of these findings to experiments with normal-hearing listeners.