

Using brainstem frequency following responses when auditory feedback is altered to identify the auditory and bone components during articulation
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The frequency following response has two main components when measured during articulation (FFR-A): FFR-A includes speaker's own voice pitch recovered from what was heard (the air-conducted component) and a bone-conducted component due to resonance of the contributing articulatory structures. The regions of interest (ROI) of these components were specified along frequency-time axes. The ROIs for own voice pitch were based on estimated pitch in the participant's speech. The ROIs for bone-conducted sound were specified as the band below 1600 Hz (own voice pitch from air was removed using a band-stop filter). To validate that the ROI analyses separated the two components, participants speech output was shifted up in frequency before it was played back to them (only the air-conducted component should change under this manipulation which was confirmed). Cortical ERP responses were collected concurrently to test for corticofugal influences on FFRs. N1 and P2 were attenuated in FFR-A conditions compared to control conditions (perception and silent mouthing whilst a target sound was played). Also, the ERP-components correlated with parameters that reflect the fidelity of pitch in FFR-A.