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**Two-tone suppression of stimulus frequency otoacoustic emissions
in human ears with sensorineural hearing loss**

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Two-tone suppression (2TS) of stimulus frequency otoacoustic emissions (SFOAEs) recorded in normal-functioning human ears is a non-invasive measure of cochlear nonlinearity. This study investigates 2TS SFOAE response properties in 63 subjects with sensorineural hearing loss and normal middle-ear function. SFOAEs were measured using tones at frequencies (f_p) from 0.5 to 8 kHz and levels from 40-60 dB SPL. For interpreting SFOAEs, hearing status was classified at each frequency according to degree of hearing loss, with losses ranging from within normal limits to 95 dB HL. SFOAE suppression was measured as a function of suppressor frequency (f_s) and level (L_s), with results analyzed in terms of a SFOAE suppression tuning curve. A tip-to-tail difference (TTD) was defined between the L_s needed to produce a criterion decrement in SFOAE level at f_s one octave below f_p and the L_s needed to produce a criterion decrement near f_p . The TTD estimates cochlear-amplifier gain in normal-functioning ears, but its properties in impaired ears based on SFOAEs have not been examined. Results will be analyzed as a function of the hearing status to assess the relative impact of outer-hair cell dysfunction in the SFOAE source region at tonotopic place. [Work supported by NIH.]