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**The perception of frequency peaks and troughs: psychophysical data and functional brain imaging data**

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The perception of a single cycle of cosinusoidal frequency modulation (FM) displays a sharp asymmetry. Difference limens for the temporally central frequency apex of the FM are lower for peaks than for troughs, even when those are matched in frequency (Demany and McAnally, 1994). We investigated stimuli containing frequency plateaux before and after the FM. Psychophysical data showed that the perceptual asymmetry was still present, for different durations and depths of the FM. Functional brain imaging data was obtained for the stimuli, using full-head magnetoencephalography. The time courses of the physiological signals were distinctly different for FM peaks and troughs.