

Supporting Information

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SI Methods

Subjects. Twenty healthy, normal hearing subjects (five females) between 21 and 43 years of age (mean, 29.6 years) participated in a behavioral study that investigated whether the probands could reliably perceive a phantom “auditory afterimage” sensation known as “Zwicker tone (1)” after the cessation of notched music.

Stimuli and Experimental Design. We presented auditory stimuli of 10-s duration diotically. The participants were supposed to report whether they could perceive a Zwicker tone right after the cessation of these stimuli or not (two-forced choice). We presented four different types of sound stimuli: white noise, notched noise, normal music, and notched music. Notched noise and notched music were prepared from white noise (sampling rate: 44,100 Hz) or normal music (sampling rate: 44,100 Hz) by eliminating the one octave wide frequency band centered at 4 kHz. We used eight different pieces of normal music and eight corresponding pieces

of notched music for this study. The sound stimuli were adjusted to have identical overall root-mean-square power. We randomly presented each sound stimulus type eight times with intensity of 40 dB SPL.

SI Results. The means and standard deviations of the rates that the participants reported the phantom auditory sensation to be present were $34.4\% \pm 34.1\%$ (white noise), $64.4\% \pm 36.8\%$ (notched noise), $21.3\% \pm 15.2\%$ (normal music), $20.0\% \pm 16.9\%$ (notched music). Paired *t* tests revealed a significant difference between the white noise and the notched noise conditions ($t_{19} = 4.445, P < 0.001$); however, there was no significant difference between the normal music and the notched music conditions ($t_{19} = 0.295, P = 0.772$). Therefore, it seems that the notched noise could cause the Zwicker tone, whereas the notched music could not.

1. Zwicker E (1964) Negative afterimage in hearing. *J Acoust Soc Am* 36:2413–2415.

Other Supporting Information Files

Target Notched Music

Movie S1. Example of target notched music.

[Movie S1](#)

Placebo Notched Music

Movie S2. Example of placebo notched music.

[Movie S2](#)

Original Music

Movie S3. Example of original (non-modified) music.

[Movie S3](#)