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# Hearing and Exposure to Music in Adolescents From Four Schools of Córdoba, Argentina

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## Abstract

**Purposes** The aims of this study are (a) to characterize the hearing of adolescents from four schools of Córdoba, Argentina, through the analysis of conventional and extended high-frequency audiometric thresholds and otoacoustic emissions (OAEs) and (b) to analyze the association between the mentioned hearing tests and exposure to music.

**Method** It was a cross-sectional correlational descriptive study. Hearing thresholds (250–16000 Hz), transient evoked OAEs, and distortion product OAEs were evaluated in 225 adolescents (450 ears) aged 14 and 15 years. The ears were split into two groups: Group 1 had thresholds  $\leq 21$  dB HL in all frequencies, and Group 2 had thresholds  $> 21$  dB HL in at least one. Exposure to music was evaluated through a questionnaire.

**Results** Statistically significant differences were found in both ears between Groups 1 and 2. A notch at 3000–6000 Hz was noted in both groups. Group 2 showed a progressive threshold increase from 9000 Hz. Amplitude decrease, negative values, absent distortion product OAEs, and transient evoked OAEs were noted even in Group 1. A statistically significant association between Groups 1 and 2 and the presence/absence of OAEs was observed in most frequencies. Ears with moderate or high exposure to music had greater hearing thresholds compared to ears with low exposure at most frequencies; this was more evident in Group 1. Regarding exposure to music and OAEs, no significant differences were found between the exposure categories.

**Conclusions** The findings highlight the value of implementing hearing conservation programs in Argentina, analyzing hearing tests correlated with questionnaires about recreational noise exposure in order to detect vulnerable ears early.