

Children's Sensitivity to Musical Metre: What Changes With Age and What Doesn't?

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Meter is the regular, hierarchical pattern of beats that can be perceptually abstracted from a musical composition (e.g., Lerdahl & Jackendoff, 1982). Recent work (Einarson & Trainor, under revision) examined children's perceptual sensitivity to musical metric structure using the complex Beat Alignment Task (cBAT). 32 musically untrained five-year-old children watched two videos, each of a puppet drumming along to a short musical excerpt, and gave the prize to the puppet that drummed better. One puppet drummed in synchrony with the beat of the musical excerpt, and the other drummed either out of phase (25% earlier or later) or out of tempo (10% faster or slower) relative to the beat. Musical excerpts had either simple or complex metric structure. Five-year-olds were better able to detect beat misalignments in simple than in complex metre music ($p < .001$) and they did not perform above chance levels with complex metre music. Subsequently, we investigated older children's sensitivity to beat misalignment using the same paired-video drumming task. 24 seven-year-old children with no formal music training completed the simple and complex metre portions of the cBAT. Like younger children, seven-year-olds were better able to detect beat misalignments in simple than in complex metre music ($p = .004$); however, older children's performance was significantly above chance levels for both simple and complex metre music. A $2 \times 2 \times 2$ ANOVA comparing the two groups demonstrated significant main effects of age ($p = 0.001$) and of metre type ($p < 0.001$). We conclude that overall perceptual sensitivity to a musical beat, as measure by the cBAT, is significantly better for seven-year-old children compared to five-year-old children. However, both groups show a perceptual bias for simple metre music, suggesting that this enculturated bias persists across childhood.