

A Role for Pitch Memory in Congenital Amusia

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Congenital amusia (CA) is a perceptual agnosia, defined as abnormal musical perception in the presence of normal hearing and otherwise preserved cognition. The disorder has been characterized by elevated thresholds for the discrimination of changes in pitch direction. The present study tested the hypothesis that CA individuals also have difficulty with the retention of pitch over time. A group of CA participants (n=16) was compared with a matched group of non-amusic controls. Two tones were presented over headphones with an intervening silent pause of variable duration (2s, 5s, 8s). The tones were either the same or differed in pitch by two semitones (suprathreshold for pitch discrimination in both groups). There was a significant main effect of group, a significant main effect of condition and an interaction between group and condition. The CA group performed significantly worse than the control group in all conditions, despite normal performance on digitspan — test of verbal working memory. This indicates that pitch retention, and not only pitch perception, is deficient in amusia and suggests that the disorder might be considered a deficit of dynamic pitch tracking. Ongoing studies will determine whether this memory deficit relates to an impairment of storage or rehearsal of pitch information.