

"Music and Anxiety in Williams Syndrome: Neuroimaging Endophenotypes in a Genetic Developmental Disorder"

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Abstract:

Williams Syndrome (WS), a neuro developmental disorder caused by a microdeletion on chromosome 7, results in a distinctive phenotype including cognitive-linguistic features, non-social anxiety, and a strong attraction to music. Studies of WS have focused mostly on cognitive profiles and deficits. Here, we performed fMRI studies that examined a particular strength of people with WS-the brain responses to musical and other types of auditory stimuli in young adults with WS and typically-developing controls. In Study 1, the WS group exhibited unforeseen activations of the visual cortex to musical stimuli, and it was this novel finding that became the focus of two subsequent studies. Using retinotopy, color localizers and additional sound conditions, we identified specific early visual areas in WS subjects as being activated by both musical and non-musical auditory stimuli. The results, similar to synesthetic-like experiences, have new implications for cross-modal sensory processing and atypical neurodevelopment.