

Ask an Expert

What does it mean to have synesthesia?

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Synesthesia is a condition in which stimulation of one sense automatically evokes perception in an unstimulated sense (e.g. the sound of a bell triggers seeing the color blue). The most common forms of synesthesia involve written words, letters, digits, and/or auditory stimuli.

People with developmental synesthesia typically report having the condition for as long as they can remember, and generally cannot provide an explanation or an account of how they may have learned how to associate the experiences. Individuals with acquired synesthesia report first experiencing synesthesia later in life after taking hallucinogenic drugs, or after neurological condition such as epileptic seizures.

One theory suggests children learn to associate numbers or letter with colors, possibly to aid memory. This account of synesthesia cannot by itself explain why siblings with synesthesia reared in similar environments report different colors for the same inducer, or experience different variants of synesthesia.

Family studies show various forms can exist within one family, with phenotypes differing even among close relatives. This suggests there is some common genetic basis for most, if not all, synesthetic experiences. In fact, there is at least one study of synesthesia that suggests the condition may be inherited.

The major neural hypotheses propose synesthesia occurs due to neural hyper connectivity among sensory areas in the cortex, perhaps due to faulty axonal pruning, or differences in axon guidance. Evidence supporting hyper-connectivity hypotheses comes from a diffusion tensor imaging study that showed grapheme-color synesthetes — in which a particular letter or number evokes a certain color — had increased structural connectivity.

The Question Was Answered By



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