

# Probing Question: What causes stuttering?

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Credit: iStockphoto

In the movie "A Fish Called Wanda," he's the guy who bungles the old lady's murder. In "My Cousin Vinny," he's the inept public defender for the accused. People who stutter are so often portrayed in popular media as either incompetent or disturbed that even they find themselves wondering what's wrong with them. One of the most influential individuals in 20th-century psychology, Sigmund Freud, blamed stuttering on - you guessed it - the parents. It was thought that a stuttering child was possibly mimicking speech quirks of a caregiver or else suffering a neurosis or personality disturbance.

Freud couldn't have been more wrong, explained Gordon Blood, a Penn State professor of communication sciences and disorders. "Stuttering is a neurophysiological problem, not a psychological problem, but what causes it is still a mystery."

In recent years, researchers have identified a genetic component to stuttering. One study identifies as many as three genes which appear to play a role in the disorder, and experts think there may be others. How these genes are expressed in the disorder is not entirely clear.

Brain scans offer some clues to other things that may contribute to stuttering. "In fMRI studies, EEG studies, and positron tomography, we see there are sides of the brain that light up differently during speech production for people who [stutter](#) versus people who don't stutter," said Blood. "This suggests there may be minor, very subtle differences in the way these groups of people process information."

These discoveries, which have taken place within the past decade due to advances in technology, are easing some of the shame and guilt felt by people who stutter (most often children and adolescents) and their parents, Blood noted. They also dispel the myth that if the stutterer would just slow down and relax, the stutter will disappear.

"That old advice is not only ineffective, it's very counterproductive for most people who stutter," Blood noted.

Having the genetic predisposition for stuttering does not guarantee someone will stutter, he added. "Once we add environment as a piece to the puzzle, we see that different children in the same family may react to their environment completely differently. It's possible that things like a child's temperament play a role."

Stuttering, then, appears to emerge from a combination of a genetic predisposition, a difference in language information processing, a certain temperament, and the "right" environment - one where the cognitive and emotional demands placed on a child exceed the child's capacity to deal with them.

There are different types of stutters and levels of stuttering, from what Blood calls typical dysfluencies - interjecting a lot of ums and uhs into one's speech - to what most people picture when they think of stuttering -- the involuntary repetition of a word or part of a word. But stuttering presents itself in other ways, too.

"People who stutter may also pause suddenly or have an inaudible stoppage. They may look like they're choking or just stopped talking," Blood explained. "Then there are people who are so advanced in circumlocution, in choosing words that won't make them stutter, that they hide their stutter completely. You may hear them talk and you'd think, 'Wow, what a beautiful vocabulary.' Really, it's an avoidance strategy, and an unbelievable feat of willpower. It's exhausting."

Whatever the cause of the disorder, Blood finds working with people who stutter incredibly rewarding. He admires their courage in constantly dealing with social stigmas and misunderstanding.

"You and I worry about what we say and how it sounds when it comes out," Blood said. "A person who stutters has to worry about whether people will even remain attentive and listen to the end of his sentence."

Provided by Pennsylvania State University

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