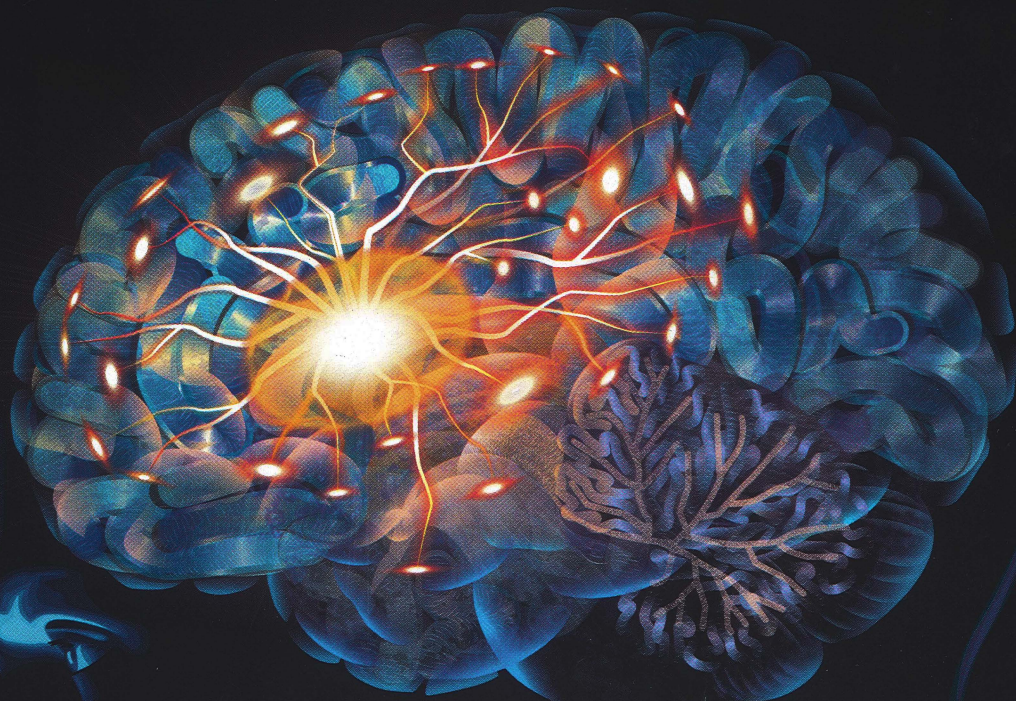


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LIP-READING

By Catherine Zuckerman

Fingerprints are so last century. The new frontier? Lip prints. Like the grooves on human fingertips, the grooves on human lips are formed at the embryonic stage and are thought to remain fixed throughout life. While lip prints aren't typically used in forensics to nail criminals, they can offer clues to a person's health—particularly his or her genetic predisposition to cleft lip or palate, some of the most common birth defects.

At University of Pittsburgh's Center for Craniofacial and Dental Genetics, director Mary Marazita and geneticist Katherine Neiswanger have been studying the genetic underpinnings of cleft lip and cleft palate for more than 20 years. Recently they turned their attention to facial features, including lip patterns, to determine if certain physical traits might in some way be connected.

No single classification system exists, says Neiswanger, but lip prints tend to fall into a few categories: straight vertical lines, "branches" that spread across the lips like tree roots, crosshatches, and circular whorls. Of these, whorls—particularly when present on the lower lip—appear to be linked to a likelihood of carrying genes for clefts and other orofacial disorders, which make it difficult for babies to breastfeed and are often stigmatizing.

The field of studying lip patterns is still new, says Neiswanger, which is why a firm connection with orofacial disorders has yet to be made. But as technology improves, this research could one day lead to early diagnosis, possibly in utero. Marazita and Neiswanger believe that, in addition to lip prints, other traits—including the shape of a face or even speech characteristics—could indicate an underlying genetic vulnerability to certain disorders. "The picture is just starting to come together," says Neiswanger, "and it's very exciting."



The patterns on a person's lips might be genetically linked to clefts and other orofacial disorders. A repaired cleft lip (top) shows a whorled pattern; a non-cleft lip (above) reveals a vertical line pattern.