

Research shows if your eyes wrinkle when you smile or frown, you appear more sincere

June 11 2018



The photo on the right of researcher Julio Martinez-Trujillo includes wrinkles around their eyes - a feature called the Duchenne marker - that researchers have found to make emotions appear more sincere. Credit: University of Western Ontario

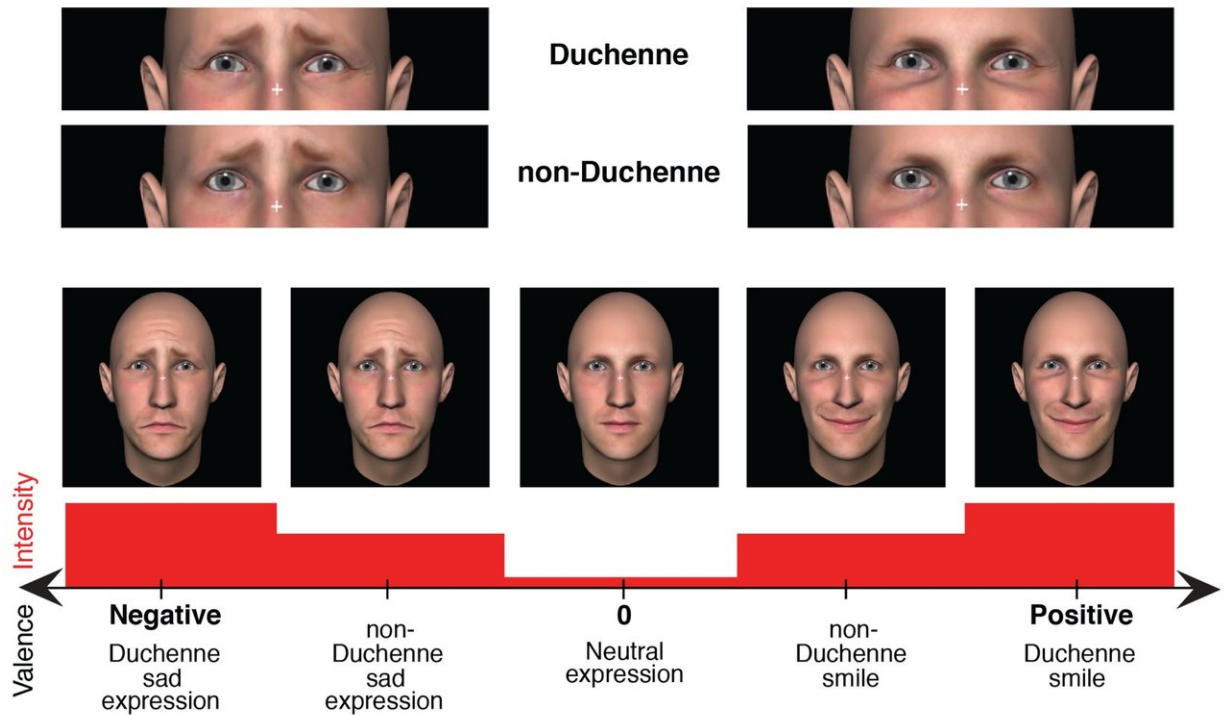
Researchers at Western University have shown that our brains are pre-wired to perceive wrinkles around the eyes as conveying more intense and more sincere emotions. This eye-wrinkle feature, called the

Duchenne marker, occurs across multiple facial expressions, including smiles, expressions associated with pain, and —as found by these researchers—expressions of sadness.

Using a method called visual rivalry, the researchers showed study participants photos of expressions with and without the Duchenne marker to study which of the expressions our brains perceive as more important. When different images are shown in each eye, the brain alternates between these two images, but will bring the image that is perceived as more relevant into perceptual awareness more often.

Principal investigator on the study, Dr. Julio Martinez-Trujillo, a professor at Western's Schulich School of Medicine & Dentistry says visual rivalry is like a window into the unconscious, and demonstrates what our brains involuntarily see as more relevant or important. "The expressions involving the Duchenne marker were always dominant. So if the emotion is more intense, your [brain](#) actually prefers to bring it into [perceptual awareness](#) for longer time," said Martinez-Trujillo.

The investigators also asked participants to rate the expressions on a scale for intensity and sincerity, and found that people systematically ranked the Duchenne smiles and Duchenne sad expressions as more sincere and more intense than the non-Duchenne expressions.



Example of images used in the study to represent the Duchenne marker. Credit: University of Western Ontario

"These findings provide evidence of a potential universal language for reading emotions. In other words, a given facial action may have a single role across multiple facial expressions—especially if that facial action shapes your social interactions. For example, knowing if a stranger's smile is genuine and whether that person can be trusted, warns you whether you should evade or not," said Nour Malek, Ph.D., first author on the paper.

The study was conducted in collaboration with investigators the University of Miami and was published in the journal *Emotion*.

The authors point out that the results are a step toward understanding the

more general questions of why facial expressions contain the specific facial actions they do, and how that contributes to our understanding of emotion.

"Since Darwin, scientists have wondered if there is a language of facial [expression](#). This research suggests one key to this language is constriction of the eyes," said Daniel Messinger, Ph.D., professor in the department of psychology at the University of Miami.

"When you have social interactions you need to perceive whether a person is sincere or not," said Martinez-Trujillo who is also a scientist at Western's Brain and Mind Institute and Robarts Research Institute. "So my interest now is, what will be the results if we do this same test with people with autism spectrum disorder. They often have trouble reading out emotions from other people, so we wonder if that might have to do with their ability to read this marker for sincerity."

Provided by University of Western Ontario

Citation: Research shows if your eyes wrinkle when you smile or frown, you appear more sincere (2018, June 11) retrieved 3 July 2023 from <https://medicalxpress.com/news/2018-06-eyes-wrinkle-frown-sincere.html>

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