

Why the long face? Horses and humans share facial expressions

August 5 2015



Horses use similar facial muscles to humans, suggesting an evolutionary parallel in how horses and humans use the face to communicate. Credit: Jennifer Wathan

Horses share some surprisingly similar facial expressions to humans and chimps, according to new University of Sussex research.

Mammal communication researchers have shown that, like humans, [horses](#) use muscles underlying various facial features - including their nostrils, lips and eyes - to alter their facial expressions in a variety of social situations.

The findings, published in *PLOS ONE* today, suggest evolutionary parallels in different species in how the face is used for communication.

The study builds on previous research showing that cues from the face are important for horses to communicate, by developing an objective coding system to identify different individual facial expressions on the basis of underlying muscle movement.

The Equine Facial Action Coding System (EquiFACS), as devised by the Sussex team in collaboration with researchers at the University of Portsmouth and Duquesne University, identified 17 "action units" (discrete facial movements) in horses. This compares with 27 in humans, 13 in chimps and 16 in dogs.

The study's co-lead author, doctoral researcher Jennifer Wathan, said: "Horses are predominantly visual animals, with eyesight that's better than domestic cats and dogs, yet their use of facial expressions has been largely overlooked. What surprised us was the rich repertoire of complex

facial movements in horses, and how many of them are similar to humans.

"Despite the differences in face structure between horses and humans, we were able to identify some similar expressions in relation to movements of the lips and eyes.

"What we'll now be looking at is how these expressions relate to emotional states."

The researchers analysed video footage of a wide range of naturally occurring horse behaviours to identify all the different movements it is possible for horses to make with their face. They also carried out an anatomical investigation of the [facial muscles](#) that underpin these movements. Each individual facial movement that was identified was given a code.

Co-lead author Professor Karen McComb said: "It was previously thought that, in terms of other species, the further away an animal was from humans, the more rudimentary their use of facial expressions would be.

"Through the development of EquiFACS, however, it's apparent that horses, with their complex and fluid social systems, also have an extensive range of facial movements and share many of these with humans and other animals. This contributes to a growing body of evidence suggesting that social factors have had a significant influence on the evolution of facial expression."

She added that a systematic way of recording [facial expressions](#) would have a wide range of uses. "With EquiFACS we can now document the [facial movements](#) associated with different social and emotional contexts and thus gain insights into how horses are actually experiencing their

social world. As well as enhancing our understanding of social cognition and comparative psychology, the findings should ultimately provide important information for veterinary and animal welfare practices."

More information: *PLOS ONE*,
[dx.plos.org/10.1371/journal.pone.0131738](https://doi.org/10.1371/journal.pone.0131738)

Provided by University of Sussex

Citation: Why the long face? Horses and humans share facial expressions (2015, August 5)
retrieved 9 April 2024 from <https://phys.org/news/2015-08-horses-humans-facial.html>

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