

Horses much more intelligent than previously thought, study suggests

August 13 2024



Credit: Unsplash/CC0 Public Domain

Horses are a lot smarter than previously believed, researchers argue, after a study revealed how they cleverly adapted their approach to a game in order to get the most treats for the least effort.

Equine scientists at Nottingham Trent University wanted to understand more about the way in which [horses](#) learn, as this knowledge can be used to help train them more humanely and improve their welfare.

The team developed a task whereby horses touched a piece of card with their nose in order to get a treat—but then gradually began to make it more challenging.

The study is published in the journal [*Applied Animal Behavior Science*](#).

As part of the next stage, horses would not get a treat if they touched the card while a light was on, but would if they touched it while it was off.

All horses struggled to perform this task, the study suggested, indiscriminately touching the card regardless of the light being on or off, while still being frequently rewarded for all of their correct responses.

In the final stage, however, the researchers introduced a penalty for touching the card when the "stop" light was on, giving a 10-second time out during which they were unable to play the [game](#) or receive a reward.

What the team found was a sudden and highly significant reduction in errors among all the horses involved, as they began to play the game correctly, only touching the card at the right point in order to receive their treat.

The researchers argue that, rather than failing to understand the game as it originally appeared, it's possible the horses had understood the game the whole time but had found a way to play, which meant they did not have to pay much attention.

They believe this shows a higher level of cognitive processing than was previously thought possible, as they were able to instantly switch

strategies and behave in a different way as soon as there was a risk of something being taken away from them.

This approach requires the horse to think into the future, the researchers say, and is very goal directed, with horses required to focus on what they want to achieve and the steps they need to take to do this.

This, they argue, is something which has previously been considered beyond a horse's cognitive capacity.

"At first we found that horses would just keep touching the card over and over, as they probably realized they would still get a frequent reward with minimal mental effort," said senior researcher Dr. Carrie Ijichi.

She said, "There was no cost for indiscriminate hitting. Sometimes it paid off, sometimes it didn't. When we introduced a cost for their errors, however, they could instantly understand and play the game properly.

"Horses are not natural geniuses, they are thought of as mediocre, but this study shows they're not average and are in fact more cognitively advanced than we give them credit for.

"We now think that horses may be able to use a form of learning called 'model-based learning' which was thought to be too complex for them. This will now help us to understand their behavior and capabilities much better.

"It's fascinating because they have a very underdeveloped pre-frontal cortex which is what we typically credit with producing that type of thinking in humans. This means they must be using another area of the brain to achieve a similar result and this teaches us that we shouldn't make assumptions about animal intelligence or sentience based on whether they are 'built' just like us."

Researcher Louise Evans, based in Nottingham Trent University's School of Animal, Rural and Environmental Sciences, said, "We were expecting horses' performance to improve when we introduced the time-out, but were surprised by how immediate and significant the improvement was.

"Animals usually need several repetitions of a task to gradually acquire new knowledge, whereas our horses immediately improved when we introduced a cost for errors. This suggests that the horses knew all along what the rules of the game were."

More information: Louise Evans et al, Whoa, No-Go: Evidence consistent with model-based strategy use in horses during an inhibitory task, *Applied Animal Behaviour Science* (2024). [DOI: 10.1016/j.applanim.2024.106339](https://doi.org/10.1016/j.applanim.2024.106339)

Provided by Nottingham Trent University

Citation: Horses much more intelligent than previously thought, study suggests (2024, August 13) retrieved 13 August 2024 from <https://phys.org/news/2024-08-horses-intelligent-previously-thought.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.