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Fair or unfair? The infinite patience of domestic dogs

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ABSTRACT

Did domestication allow pet dogs to develop a lesser form of inequity aversion? Did domestication help their inequity aversion response to become less pronounced, giving them the temperament to better tolerate inequities? When dealing with inequitable situations dogs surprise us once again.

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It is likely not surprising to anyone reading this that humans have a strong sense of fairness. We recognize and respond to inequities from a very young age, and we continue to strive for equity throughout our lives. Though many may consider this a uniquely human trait, recognizing and responding to inequities, termed "inequity aversion", has been found in many non-human animals, including chimpanzees, capuchin monkeys, ravens, and pet dogs, among others. Now, one of those may stand out to you – yep, even your pet dog has a sense of inequity. Studies on pet dogs have repeatedly found that they refuse to continue working for 'free' when a familiar dog is working for a food reward next to them ('working' here is typically represented by giving the paw to the experimenter). Interestingly, these studies found that pet dogs did not refuse to continue working when they are merely given a lower quality reward compared to the familiar dog; as long as they received any reward, even if it was a piece of kibble compared to the much-coveted piece of cheese, they would continue to work. Conversely, humans and many non-human primates refuse to continue working when they are given a lower quality reward compared to a partner.

Did domestication allow them to develop a lesser form of inequity aversion? Did domestication help their inequity aversion response to become less pronounced, giving them the temperament to better tolerate inequities? We all know that domestication

has had many profound effects on dogs, within the realm of both their appearance as well as their behavior. Alternatively, do their development and experience throughout their life with humans affect their inequity response? In our study, we set out to test what affect domestication may have had on the dog's inequity response, and what effect a life of living with humans may further affect their inequity response. In order to do so, we tested similarly raised and kept pack-living wolves and dogs, located at the Wolf Science Center in Ernstbrunn, Austria, in a task similar to earlier studies done on pet dogs. Individuals were paired with a partner from their pack, and an experimenter would alternate between them, asking for the 'paw' and rewarding them, or not, depending on the condition. We did have to modify it some – we were working with wolves, after all! – and the task had them place their paw on a buzzer, which was moved in and out of their enclosure. After each test, we gave the animals the opportunity to interact with their partner as well as the experimenter (or not!).

We found both dogs and wolves stopped working earlier when they were unrewarded compared to their partner, but – unlike pet dogs – they also stopped working earlier when they were given a lower value reward compared to their partner. This is extremely interesting, as it suggested that lifestyle may indeed affect the inequity response in pet dogs: living with humans may make them more tolerant of some types of inequity from them. We found further evidence that the dogs were more likely to return to work when they were called back, while wolves were not (the experimenters could call them back to the buzzer a few times before ending the session). Thus, it appears that both domestication, as well as life experience, have affected this inequity aversion response in dogs!

This eager-to-please tendency in dogs does appear to be rooted in the domestication of the dog, rather than only the life experience, as the dogs in our task lived full time in a pack, with as much experience with humans as the wolves. For the dog owners out there reading this, this probably comes as no surprise to you – I am often told that this experiment just further reinforced what people already recognize in their own pet dogs. Indeed, within the two dogs I own, I recognize both their inequity aversion as well as their tolerance of me asking them to respond to commands in inequitable situations, when I am rewarding one dog but not the other.

Hopefully, these findings will help open the door into further research on what effect domestication and life experience may have on the cognitive responses in our pet dogs.