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Untersuchung zur Impulskontrolle bei Schweinen
hinsichtlich quantitativer und qualitativer Unterschiede in der Belohnung

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Summary

The welfare of farm animals is becoming increasingly important in livestock husbandry. The more we known about cognitive abilities, emotions and the correlation with animal welfare the stronger is the demand and support for a livestock husbandry which is adapted to the animal behaviour and their individual abilities. One of the cognitive abilities is impulse control. In general, impulse is the ability to resist the impulse taking an immediate but smaller/worse reward instead of waiting for a delayed but larger/better reward. Until now, only little research in the field of impulse control of farm animals was conducted. Hence, only one research study was completed about pigs.

The present study examines the differences in impulse control when rewards differ in quantity or quality. To answer this, an experiment has been executed with 20 female pigs of Deutsche Landrasse (*Sus scrofa*). It was performed in three phases: 1. Habituation phase with a preference test to get used to the experimental set up and process and to identify individual food preferences for different rewards. 2. Discrimination phase to distinguish the better from the worse reward and the bigger from the smaller reward, respectively. Here the pigs were divided into two equal sized groups (quantity and quality). In the quality group each pig got one piece of its least preferred reward and one piece of its most preferred one. In the quantity group each pig could choose between one piece or four pieces of its most preferred reward. 3. Test phase (delay maintenance test): here the lager/better reward was presented ten times each day with an increasing delay (delays: 2s, 4s, 8s, 16s, 24s, 32s and 40s). For reaching the next delay the pigs had to choose at least 9 out of 10 times the larger/better reward (significant binomial test). To drop out of the test the pigs hat to choose 9 out of 10 times the smaller/worse reward (significant binomial test).

During the discrimination phase the pigs in quality group needed less training days until they reached the learning criteria. This means that in 7 out of 8 trials the bigger/better reward had been chosen. The pigs in quality group learned faster to differentiate the better from the worse reward. In this experiment the maximum delay in quality group was (N=2) and in the quantity group 16s (N=2). Moreover, the pigs in the quality group quality needed less days of training to reach the next delay ($P<0,05$). It was shown that at a delay of 8s the pigs of the quality group waited significantly longer for the better reward ($P<0,05$), whereas the pigs in quantity group preferred significantly more often the smaller but immediate reward ($P<0,05$).

To conclude, the impulse control of pigs differs if rewards vary in quantity or quality. If a reward differs in quality pigs show a higher impulse control which means that they are willing to wait longer for a better reward. This conforms with studies on other animals like crows, ravens and cockatoos. Therefore, the presented study is a first step for further research on impulse control as a cognitive ability in pigs.