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Specificity of early handling: Are rabbit pups able to distinguish between people?

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Abstract

Rabbits' early life contains a short period when pups are extremely sensitive to novel stimuli and become accustomed to it. If they are handled by the hand during this period their avoidance toward humans decreases. The present study investigated whether pups could distinguish between humans by performing an experiment where different persons handled and tested the rabbits' behaviour toward humans while the control group was left untouched. Handling occurred during the first week of the pups' life and their behaviour in an approach test was measured when they were 4 weeks old. We found that the pups did not behave differently toward neither of the testers, but they interacted significantly more frequently with the familiar person than with the unfamiliar one. Rabbits in the handling treatment approached the experimenters significantly sooner than the non-handled ones, regardless of whether the familiar or the unfamiliar person conducted the test. We also found that non-handled pups compared to both of the handled groups moved significantly less during the test. We can conclude that rabbits might be able to distinguish between humans and this may have applied indications.

Keywords: Handling; Rabbit; Human; Distinguish

1. Introduction

There have been many investigations performed studying rabbit's behavioural response to humans. During early life of rabbits there are certain short periods linked to nursing when they learn extremely fast and this has long lasting effects which are possible to observe even at 6

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months of age (Bilkó et al., 1994); for example rabbits are able to recognise smells they perceived during the first week of their life (Nyírő et al., 2005).

It has been found that rabbits' avoidance of humans decreased if they were handled (touched by the hand) during the first week of their life (Bilkó et al., 1994). Reinforcing properties of handling are effective only when performed around nursing time (Pongrácz and Altbäcker, 1999), which occurs only once a day (Hudson and Distel, 1982). The existence of this sensitive period has been observed on wild as well as on domestic rabbits (Bilkó and Altbäcker, 2000). The prenursing arousal state per se, rather than nursing, presence of the doe or milk ingestion, is essential for the handling-induced reduction of rabbit pups' fear response toward humans (Allingham et al., 1998; Pongrácz and Altbäcker, 2003).

Our previous study showed that even minimal human contact, which lasted for a maximum of 5 s per litter could reduce rabbits' fear responses toward humans if it was performed during the sensitive period of the pups (Csatádi et al., 2005). Furthermore, rabbits are able to discriminate between species; if pups were stimulated by a tame cat (it was put over them right after nursing) later when their behaviour was tested they showed preference only toward the cat but avoided humans (Pongrácz et al., 2001). Having this clear result, that rabbits are able to distinguish between species we were interested whether they could distinguish not only between species but within one: humans, more specifically between two individuals. Hence we performed an experiment where two different human handled and later on, tested the rabbits. Our hypothesis was that pups would be able to distinguish among different persons, having their extraordinary learning skills, and would show decreased avoidance behaviour toward a familiar person than toward an unfamiliar one. We also expected that non-handled pups' behaviour would significantly differ from either of the handled groups' reaction for humans.

2. Materials and methods

Study subjects were chinchilla rabbits, bred at the breeding house of the Department of Ethology, Eötvös Loránd University. Does were housed in standard wire mesh cages (55 cm × 45 cm × 35 cm) and were provided with rabbit pellets (Monor) and water *ad libitum*. Light regime and temperature were kept constant (14/10 L/D and 20 ± 2 °C). Does were mated naturally by putting the females into the bucks' cage. Four days before the expected parturition (day 28 of pregnancy) plastic nest boxes were fitted to the cages and does were provided with nest building materials. Following parturition nest boxes were closed and mothers were allowed to nurse their pups only once each day between 9 and 10 o'clock each morning. Thirty-two litters were used in this experiment. Thirteen were handled by the first handler (27-year-old female), and 13 others were handled by the second handler (50-year-old male). Six litters were left untouched as a control group. Average number of pups (±S.E.) in the case of the first and the second tester was 5.92 ± 0.28 and 6.07 ± 0.43, respectively. In the case of non-handled litters the average number of pups per litter was 7.5 ± 0.34. The total number of pups in the same order was: 77, 79 and 45.

The handling procedure was the following: during the first week, every day, immediately after nursing pups were taken out of their nest box and were weighed and marked individually on the ears with an individual combination of red, blue or green permanent marker. Tagging was performed every day as the ink disappears soon. The procedure lasted for approximately 250–350 s depending on the litter size. Reaction of pups was measured individually in an approach test at weaning on day 28. Handled litters were divided into two groups, one being tested with their familiar handler, the other one tested with the unfamiliar person. Non-handled litters were tested by the first handler (the female experimenter). The test was conducted the following way: animals were put one by one into the 45 cm × 55 cm × 65 cm wire mesh rabbit cage for 5 min to habituate the pups to the apparatus. After this the experimenter approached the cage to within one arm's length and placed his/her palm against the mesh wall. The latency to the first approach by the pup (in seconds) and the total number of approaches were recorded during the 5-min test period. An approach was