Does handling frequency during the acclimatization affect the reaction of DA rats to routine experimental procedures?

P.-P. Tsai, J. Freymann, G. Cramer, J. Kirchner, H. D. Stelzer, H. Hackbarth
Institute of Animal Welfare and Behavior, University of Veterinary Medicine Hannover, Germany

Aim
A number of studies have reported that habituation to handling is associated with a reduction in stress response and such habituation can decrease the effects of stress associated with human interactions. Therefore an appropriate period of adaptation following transportation is widely recommended for laboratory animals. However, information about the influence of handling frequency during acclimatization is still limited, the aim of the present study was to determine the effects of handling method, duration and frequency during acclimatization on the reaction of rats subjected to routine experimental procedure.

Material & Method
DA rats were chosen due to particular fearfulness. After weaning DA rats were randomly allotted to 4 groups, in groups of two or three per cage. Groups G5 and G1 were gently stroked for either five or one minute (Fig. 1). Rats of Group S were grasped by the base of tail (Fig. 2) and animals of Group K were held by gripping around the chest (Fig. 3) without any further contact to humans.

Rats were handled twice (Experiment 1, 20\(\times\)18\(\times\)18) or five days a week (Experiment 2, 23\(\times\)
24\(\times\)) for three weeks (4-6 weeks of age) followed by a double blind test. At seven weeks of age behaviour/reactions of rats (such as capture, handling and restrain) was observed during routine experimental procedure and scored by experienced and inexperienced personnel.

Results
During experimental procedure animals of Group G5, G1 and K were significantly less anxious to human contact than Group S (Fig. 4). A similar tendency was found for experiment 2.

Increasing handling frequency led to a significantly reduced anxiety in Group S and K, when animals were handled during experiment (Fig. 5). Except for Group S the handling frequency did not affect the aggressive reaction during restrain procedure.

Conclusion
According to the present results the anxiety of animals can already be reduced, when rats are gently stroked twice a week (one minute per time) during cage changing. To stroke rats regularly during acclimatization, as well as to train the researcher before a study is performed, will be beneficial for the welfare of animals and reduce the possible influence of stress response on experimental results.

Download Poster at: www.tierschutzzentrum.de