Physiological response of rabbits to heat, cold, noise and mixing in the context of transport.

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Abstract

The effects on rabbits of four potential transport-related stressors (heat [HS], cold [CS], noise [NS] and mixing with unfamiliar animals [MS]) on certain physiological and meat quality parameters were studied. These are factors which may act to reduce the welfare of rabbits during their transport to the slaughterhouse. The rabbits were exposed to each potential stressor for four and a half hours prior to slaughter. HS groups showed the highest plasma concentrations of cortisol, lactate and glucose and greater packed cell volume (PCV) and osmolarity than the control group, and the meat exhibited a low initial pH as a direct consequence of lactic acid accumulation. The rabbits exposed to cold (CS) and noise (NS) showed physiological responses to the potential stressor, although to a lesser degree than rabbits exposed to heat. Cold stressed rabbits showed increased levels of creatine kinase (CK) and a higher PCV as well as decreased muscle glycogen concentration compared to the control. Rabbits exposed to noise showed muscular damage as demonstrated by increased levels of CK and lactate dehydrogenase (LDH) activity in the blood and a high final pH in meat. Mixing unfamiliar rabbits (MS) lead to higher CK activity, lower lactate and glucose concentration and the meat pH was slightly higher than the control group. In conclusion, these results suggested that rabbits exposed to heat were the most affected out of all three groups, although cold, noise and mixing with unfamiliar rabbits also had a detrimental effect on physiological and meat quality parameters.

Key words: Animal welfare, Cold stress, Heat stress, Mixing stress, Noise stress

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