
Abstract

It is important to understand factors that may influence responses to stress, as these factors may also influence vulnerability to pathologies that can develop when stress responses are excessive or prolonged. It is clear that, in adults, the sex of an individual can influence the cortisol response to stress in a stressor specific manner. Nevertheless, the stage of development at which these sex differences emerge is unknown. We tested the hypothesis that there are sex differences in the cortisol response to tail docking and ACTH in lambs of 1 and 8 weeks of age. We also established cortisol responses in males when tail docking was imposed alone and in combination with castration at these ages. In experiment 1, 1 and 8 week old male and female lambs were subjected to sham handling, tail docking or, in males, a combination of tail docking and castration. In experiment 2, we administered ACTH (1·0 IU/kg) to male and female lambs at 1 and 8 weeks of age. There were significant cortisol responses to all treatments at both ages. Sex differences in the cortisol responses to tail docking and ACTH developed between 1 and 8 weeks of age, with females having greater responses than males. The data suggest that the mechanism for the sex difference in response to tail docking may involve the adrenal glands. At both ages, in males, the cortisol response to the combined treatment of tail docking and castration was significantly greater than that for tail docking alone.

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