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The Old School, Brewhouse Hill, Wheathampstead,  
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www.ufaw.org.uk

Animal Welfare 2017, 26: 437-447  
ISSN 0962-7286  
doi: 10.7120/09627286.26.4.437

## **Hang on: an evaluation of the hemp rope as environmental enrichment in C57BL/6 mice**

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### **Abstract**

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*When introducing environmental enrichment in laboratory animals, positive and/or negative effects on behavioural and physiological parameters should be evaluated. This three-step randomised controlled trial in male C57BL/6 mice investigated the effect of supplementing the environment with one or more hemp ropes. In part 1, the effect of a hemp rope on aggressive and social behaviour, stress and anxiety levels was assessed by social interaction test, elevated plus maze behaviour, and faecal corticosterone metabolites, respectively (n = 224 mice). In part 2, the effect of 1, 2 or 7 hemp ropes on aggressive behaviour in mice subjected to routine handling was evaluated by assessing the number of wounded companion animals and wounds per animal (n = 224). In part 3, climbing activity in the rope and amount of material shredded from the rope was assessed (n = 56). Mice housed with one hemp rope engaged in social behaviour for longer time than mice housed without a hemp rope, while no difference was detected in stress and anxiety levels. No difference was seen in the number of wounded animals or wounds per animal when adding 1, 2 or 7 hemp ropes to the existing environment in mice undergoing minimal human handling. The mice continuously shredded and climbed the rope, even when provided with a new rope, although time spent climbing decreased slightly over time. Thus, a hemp rope can be used as additional environmental enrichment amongst male C57BL/6 mice.*

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**Keywords:** aggression, animal welfare, environmental enrichment, mice, stress, wounds