Do rabbits need each other? Effects of single versus paired housing on rabbit body temperature and behaviour in a UK shelter

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Abstract

In the wild, rabbits (Oryctolagus cuniculus) are social but territorial. Recent surveys suggest that over half of pet rabbits are housed singly. We aimed to compare welfare in single versus paired rabbits. We predicted singletons would show more abnormal or escape behaviour, greater stress responses to handling, and reduced body temperature (being unable to huddle with another individual when cold), but that pairs may show aggression. This study was conducted during winter at a rabbit-only rescue centre, and included 45 rabbits, comprising 15 housed singly and 15 pairs. Like most pet rabbits, they were housed either outdoors or in unheated outbuildings. Singletons were mostly in smaller enclosures than pairs. Home-pen observations (40 min) revealed bar-biting in 8/15 single rabbits compared with 0/30 of the paired ones. No other behavioural effects of social housing reached significance, and enclosure size showed no significant effects. Body temperature was significantly lower in singletons than pairs, with at least 0.5°C mean difference. On colder days, rabbits adopted compact postures more, and relaxed postures less frequently. After handling, pairs resumed normal behaviour significantly more quickly than singletons in the home-pen (3.0 [± 0.3] versus 8.3 [± 1.3] s, respectively). Aggression was never observed. The results indicate that social housing reduces bar-biting, aids thermoregulation, and may help buffer stress. Rabbit owners should be encouraged to meet the need for rabbits to be housed with an appropriate conspecific in a suitably large, sheltered enclosure.

Keywords: abnormal behaviour, animal welfare, rabbits, social buffering, social isolation, thermoregulation

Introduction

In the wild, rabbits (Oryctolagus cuniculus) are a social species, but surveys indicate that between 54 (People’s Dispensary for Sick Animals [PDSA] 2018) and 58% (Rooney et al 2014) of UK pet rabbits are kept singly, and single housing is also common in rabbits kept by UK breeders (Gosling et al 2018). Approximately 63% of pet rabbits are kept singly in Australia (Howell et al 2015), and around 50% in The Netherlands (Schepers et al 2009) and the US and Canada (Welch et al 2017). This is potentially a violation of one of the Five Needs outlined in the UK Animal Welfare Act (2006): that “animals should be housed with, or apart, from other animals as appropriate for the individual and species”. In a survey of people buying rabbits in the UK, 60% believed that human company could suffice instead of a second rabbit, and 40% were planning to keep their new rabbit alone (Edgar & Mullan 2011). In a Delphi consultation involving eleven rabbit welfare experts (seven continuing to completion), inappropriate social grouping was recognised as being a severe and lasting welfare issue, but it was not selected as a key priority issue for rabbit welfare (Rioja-Lang et al 2019). There are arguments both for and against social housing of rabbits.

Potential reasons for solitary housing of rabbits

While a social species, wild rabbits are territorial, occupying individual burrows within a larger warren where the habitat allows, and defending them from intruders (Cowan 1987a,b). Aggression in captive rabbits constitutes a welfare concern for the victim due to potential wounding and social stress, as well as possibly for the aggressor, depending on the reasons for aggression. Rabbits can be difficult to pair successfully because of aggressive behaviour (Crowell-Davis 2007). Approximately 48 of 52 pet rabbits housed with at least one other rabbit in a UK survey showed a degree of antagonistic behaviour (chasing and mounting), but only four had ever been injured by their companion, and all owners reported their rabbits’ relationships as ‘friendly’, rather than aggressive (Mullan & Main 2006). In another survey of over 1,000 rabbit owners, approximately one quarter of rabbits were reported to at least occasionally show aggression, competition and/or avoidance towards each other (Rooney et al 2014), so it is conceivable that in some cases, social housing could negatively affect rabbits. In a study of rabbit preference, both dominant and subordinate laboratory rabbits showed a preference to be apart from their pen-mates, but only if the solitary pen was of equal size and quality to the group pen;