Social Housing of Rabbits
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Single housing of social species should be the exception and justified based on experimental requirements or veterinary-related concerns about animal well-being.

The need for single housing should be reviewed on a regular basis by the IACUC and veterinarian.
Social Environment: Appropriate social interactions among members of the same species (conspecifics) are essential to normal development and well-being. When selecting a suitable social environment, attention must be given to whether the animals are naturally territorial or communal and whether they should be housed singly, in pairs, or in groups. An understanding of species-typical natural social behavior (e.g. natural social composition, population density, ability to disperse, familiarity and social ranking) is key to successful social housing.
Not all members of a social species are necessarily socially compatible. Social housing of incompatible animals can induce chronic stress, injury and even death. In some species, social compatibility may be sex biased… *Risks of social incompatibility are greatly reduced if the animals to be grouped are raised together from a young age, if group composition remains stable, and if the design of the animals’ enclosure and their environmental enrichment facilitate the avoidance of social conflicts.* Social stability should be carefully monitored; in cases of severe or prolonged aggression, incompatible individuals need to be separated.
For some species, developing a stable social hierarchy will entail antagonistic interactions between pair or group members, particularly for animals introduced as adults. Animals may have to be introduced to each other over a period of time and should be monitored closely during this introductory period and thereafter to ensure compatibility.
A behavioral comparison of New Zealand White rabbits (*Oryctolagus cuniculus*) housed individually or in pairs in conventional laboratory cages

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• Wild rabbits (*O. cuniculus*) live in multi-sex groups of up to 20 adults composed of several breeding pairs and young.
• Intra-sexual dominance hierarchies – males defend mates, females defend nest sites.
• Yet may be highly social, especially domestic rabbits frequently resting, grazing, basking and grooming especially in highly enriched floor pens.
• Experimental goal to compare behaviors in rabbits paired and single housed in conventional cages (not highly enriched floor pens)
Results

• Four 9 week old female NZW rabbits paired and four single housed rabbits in cages for 5 months.
• One pair had to be separated at end of study for fighting.
• Beneficial effects of pair housing decrease abnormal behaviors & increase locomotion
Materials & Methods

A two question survey was successfully e-mailed to 799 of 872 ACLAM Diplomates listed in the Fall 2012 Directory.

1. In your experience, what are the contributors to successful pair or group housing of rabbits?

2. Any showstoppers?

Results

71 responses received .... 9% return rate.
ACLAM Survey Contributors to Success

- PENS – Abundant enrichment, rotating toys (including chewable) and multiple feed stations. (48%)
- HIDING SPACES- PVC burrows, boxes, visual barriers (48%)
- MORE FLOOR SPACE THE BETTER (45%)
  - 6 sq ft per rabbit (F) X 4
  - 6 sq ft per rabbit (M or F) X 10
  - 8 sq ft per rabbit (F) X 3
  - 11 sq ft per rabbit (F) X 6
  - 13.5 sq ft per rabbit (M) X 6
  - 27 sq ft per rabbit X 3 (F)
ACLAM Survey Contributors to Success

- FEMALES (44%)

- YOUNGER the BETTER (42%)
  2.0 kg (M), 2.5 kg (F) to ~3kg (8-18 weeks)

- NEVER Pair Males – unless castrated (28%)
  Castrate males before 6-10 weeks age
  May house older castrated males with younger castrated males
ACLAM Survey Contributors to Success

• LITTER Mates (21%) – same sex

• VENDORS send paired rabbits (13%) – ship pair in divided box

• Side by side protected contact before free contact (9%) Intact males fight – bite & urinate on each other in PC
Disadvantage to Pen Housing

- Labor Intense— but need to track labor especially density driven economies of scale.

- Cannot track diet intake per animal

- “If intact males cannot be group housed, then we cannot group house females for comparison in toxicology studies.”
Disadvantage to Pen Housing

• “Not worth the risk due to aggression & spending hours suturing wounds.”

• “Over time, they all fight regardless of sex”

• “Reintroducing to group after experimental procedure increases risk of incompatibility”
Disadvantage to Pen Housing

• “As soon as juvenile males become sexually mature, they castrate each other- a complete disaster.. I will never try again.”
Disadvantage to Pen Housing

• “Mature males castrate each other- requiring surgery or euthanasia.’

• “Housing 3 females in a highly enriched pen worked well… but when tried at my next facility, it was a disaster------ twice.”

• “I have not been able to house in groups beyond 6 months of age.”

• “Pigmented rabbits more aggressive than NZW – both sexes.”
Disadvantage to Pen Housing

• “We just tried social housing males in the same manner as females (6/pen). It went well Tuesday through Sunday with some minor scuffling noted, one animal had an eye scratch, but they seemed to be doing OK. Then the next Monday or Tuesday, we came in and had to euthanize 3 animals (out of 18 in a pilot project) for severe injuries including lacerations to the scrotum. Needless to say, we’re rethinking this.”
Disadvantage to Pen Housing

• Pseudopregnancy in group housed females

• Initial pairing of 3-4 month old females, they fought & one had to be euthanized due to back trauma which “dampened our enthusiasm to try again”.
Benefits

• Staff like it. Morale booster. Rabbits become friendlier, approach staff and are easier to handle especially if staff visit and sit with them and offer food rewards.
Benefits

• 20 years of experience social housing polyclonal antibody producing female rabbits housing over 100 rabbits at a time. Any showstoppers?— “No way!--- We found that the rabbits are easier to handle and actually bleed better than those housed individually in cages”
Benefits

• “The array of behaviors we found in group housed rabbits was astonishing (exploratory, rearing, burrowing, interaction with each other, very active with much jumping, running, chasing, vocalizing, thumping (both with & without aggression), resting together—in general much more animated than single housed rabbits. Group housing provides enormous behavioral benefits—even with the mishaps. Once we did it, it made me feel guilty that we had single housed for so long.”
CONCLUSIONS

• Social housing rabbits is possible & beneficial

• Younger animals are more successful (either sex)
  (10-15 wks – 2-3 kg)

• Maturation in both males and females increases risk of incompatibility
  (18 wks- histologically mature testicles)
Conclusions – continued

• Intact females with much higher success than males
  Neutering males definitely increases success (done at vendor < 6wks?) – females also?

Littermates increase success
  Vendor space constraints
Conclusions - continued

- Pens providing >> 6 sq ft per rabbit with many hiding spaces, visual barriers, wood shaving bedding, ever changing enrichment and multiple food/water provision.
  
  Operational cost (per diem) impact
Final Conclusion

We need funded, scientific, behavioral studies & peer reviewed publications to *HOP* forward.
Comments?