



# *Caring Hands*

*Discussions by the Laboratory Animal  
Refinement & Enrichment Forum*

*Volume II*

*Caring Hands*

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{Chapter 1}

# Basic Issues





*Legal minimum cage space requirements are usually based on body weight. How appropriate, from the caged subject's point of view, are such stipulations?*

- Legal minimum space requirements should be tailored in such a way that species-specific and species-adequate furniture can be placed in the enclosure without blocking part of the space that the occupant(s) need for free movement and free postural adjustments. I see no difficulty that would hinder experts from coming up with prescriptions of basic furniture for each species, for example shelters for rodents and amphibians and elevated resting surfaces for birds, cats, dogs, rabbits, and nonhuman primates.
- One factor that is important but is consistently overlooked is age. Very young animals need far more space than heavy or obese ones!



- Yes, juveniles need to have more space than adults, let alone adults who are overweight. Young animals are much more active and typically want to play; to do that, they need extra space. Most countries, including the U.S. [United States Department of Agriculture, 2002a], do not take this into account in their legal minimum space stipulations for caged animals.
- In the revised Appendix A of the Council of Europe, minimum floor area is now not only based on body weight, but it also takes into account the need for young animals to play [Council of Europe, 2006]. For example, for mice, the minimum floor area is 330 cm<sup>2</sup> per mouse, independent of the animal's body weight; this means that young and small, but relatively active mice grow more or less into their cage. Furthermore, the cage must be structured and provided with enrichment; examples are given for each species.
- It may not be enough to stipulate that enrichment must be provided and then list some options. We have this situation here in the U.S. with the Animal Welfare Regulations. To take an example: you do comply with these regulations if you give a single-caged monkey a mirror, but otherwise do not structure the space, for example, with a high perch. Both the perch and the mirror are



listed as possibilities of environmental enrichment [United States Department of Agriculture, 2002a], leaving it up to you to pick and choose.

It does not seem appropriate to lump everything together under the term environmental enrichment. There are things that are biological necessities, such as elevated areas for primates, so they should be legally mandated, while other things such as mirrors may be enriching, hence can be optional.

- That is true; when only the *necessities*, such as nesting material for mice, shelter for rats, social contact for social animals, high perches for nonhuman primates, etc. are listed as examples of environmental enrichment, there is no option to get away with enrichment for which the animal has no real need, for example toys or mirrors. I saw little play balls for mice, as if mice would need those to express mouse-typical behavior patterns.





## rats



### amazing social creatures

*Is it true that rats are reliably tolerant of each other?*

- That rats get along with one another so well is one of the reasons I like working with them. I have never noticed any signs of aggression among rats.

I have worked with rats in neuropathic research. The animals were always very friendly to each other, even when they were experiencing pain. I witnessed rather affectionate interactions—such as grooming and bringing food pellets nearby—in rats who had undergone surgical procedures.

- We always keep individual rats during the post-operative phase with a buddy to speed up the recovery.
- I have worked with rats for several years but never witnessed that they were aggressive with each other. Yes, they can be aggressive with humans; I have been bitten on several occasions.

- The only time I've ever seen aggression among rats was when someone inadvertently put ex-breeder males together; predictably, this resulted in a major scrap. Unfortunately, this means that once a stud male has been used for breeding, he has to be housed singly from thereon unless he lives in a permanent pair or harem.

We occasionally get a female who becomes aggressive during the time she has a litter, but that's toward humans, not other rats.

Diabetic rats can be aggressive toward each other if their insulin is out of control, but that is only temporary and, once insulin is back under control, they become their



usual sunny selves. I believe that obese Zucker rats can be bad-tempered but suspect this is also due to erratic blood sugar levels.

- During my undergrad training, I worked in a pet store for several years. We would routinely put together rats of various ages and genders. I don't recall that we encountered any aggression-related problems when the animals met each other for the first time. To make it even more interesting, we would often use nursing rat moms to foster pups from other rodents, such as hamsters and gerbils; we simply put the new pups in the pile, and the rat mom would take care of them.
- Apart from the jumpy strains, rats are remarkably docile. They can make great children's pets.





## privacy panel and grooming-contact bars

### What is the privacy panel good for?

- A privacy panel is a regular cage divider with a passage hole close to the back wall. Two animals can access the two feeders in the front of each cage section separately without having visual contact with each other. This makes food monopolization impossible, or I should say almost impossible. I remember one dominant guy who, during the first few days after pairing, tried to eat from both feeders kind of simultaneously, until he finally gave up this rushing around and allowed the subordinate partner to eat quietly. Fortunately, the subordinate didn't get depressed during the first days. He may have anticipated that the other guy would, one day, get so exhausted as to stop his

silly racing back and forth. He was right; this pair also turned out compatible.

Privacy panels have proven to be so useful in facilitating long-term pair compatibility that they were installed in all cages of the more than 300 pairs of macaques at our facility.

- We have two adult cynos who matched up very easily as a pair, but when they were fed for the first time in their new double cage, they tore each other up pretty badly; we have not been able to pair-house them since. Our cages don't have privacy panels. I wish they did, since the feeders are in the front of the cages and partners can watch each other eating and become competitive.

- In the journal *Animal Welfare* there is a great article by Basile et al. (2007). Based on their observations of 25 pairs, the authors conclude that the increase in proximity associated with the presence of the privacy dividers reflects an increase in social tolerance and/or attraction, and that a privacy divider may provide a safe haven and give monkeys the ability to diffuse hostile situations before they escalate.

Encouraged by these results, we are now trying such privacy dividers for our adult macaque pairs to mitigate possible social tension.



### Who can share experiences with the grooming-contact bars housing arrangement for monkeys?

- We tried the grooming-contact bars with duos of juvenile and adult cynomolgus macaques of both sexes and found that they caused more problems than benefits.
- It is my experience that paired rhesus macaques interact at lower levels and show fewer behavioral improvements when they are separated by grooming contact bars compared to when they have free access to each other [Baker et al., 2008]. However, it is clear that the welfare of the animals is improved in the grooming-contact bar housing arrangement relative to single housing.
- Crockett et al. (2001, 2006) tested adult same-sex pairs of several species by housing them in double cages in which partners were separated by widely spaced vertical bars that permitted grooming but not aggressive pursuit. The following pair compatibility was found:
  - (a) female cynomolgus macaques, 89 percent,
  - (b) male cynomolgus macaques, 67 percent,
  - (c) female yellow baboons, 57 percent,
  - (d) male yellow baboons, 64 percent,
  - (e) female pig-tailed macaques, 53 percent,
  - (f) male pig-tailed macaques, 57 percent, and
  - (g) male rhesus macaques, 16 percent.





*There is published evidence that the blunting of canines of male vervets reduces the incident of serious trauma related to aggression (Knezevich & Fairbanks, 2004). Based on your own experience, would you recommend the blunting of canines of adult male macaques as a preventive procedure against serious laceration resulting from overt aggression?*

- We don't blunt the canines of our males because we had some bad experience with males that we received from other facilities. Their canines were blunted and so badly infected that we had to remove them altogether. We want to avoid this with our own animals.
- There was a time when we blunted canines of subadult and adult male rhesus, hoping that this would reduce the incident of bite lacerations. We stopped this program after about a year because quite a number

of males developed abscesses, which made it necessary to extract the roots of the amputated canines. On top of that, males with blunted canines will continue delivering bite lacerations that also require surgical treatment. Bite wounds inflicted with blunted teeth tend to be more tissue damaging than bite wounds inflicted with pointed, intact canines.

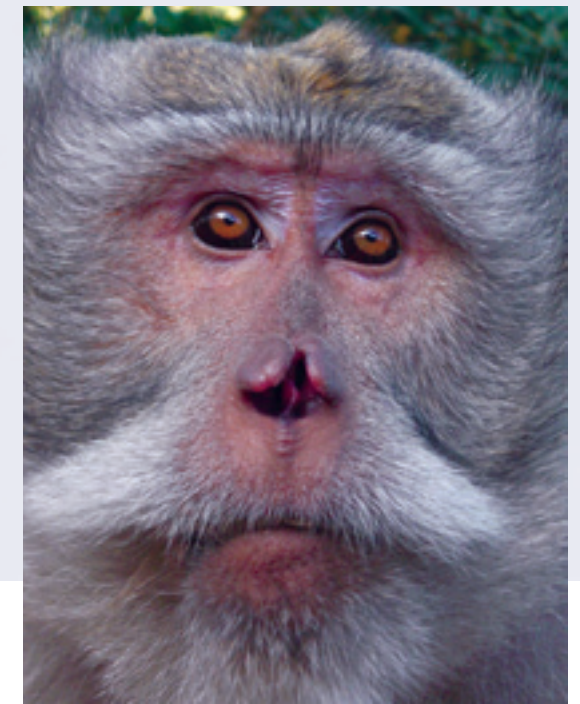
- The practice of blunting canines was stopped many years back at my facility. Some of the macaques who had the procedure done developed abscesses as well.

I have also seen one case of a macaque who needed sutures after getting in a fight with another male with blunted canines.

- We have never blunted the teeth of our macaques. I believe the males could still do a great deal of damage even with blunted canines. I've also been taught that the removal or blunting of canines can affect species-typical behavior, as the males would normally use their canines to display dominance.

- I would recommend blunting the canines of rhesus in a group-housing situation. With blunted teeth there can still be serious injuries, and I have seen some. However, I think it helps to avoid life-threatening injury.

Having said this, we pay for a veterinary dental specialist to blunt the canines. This way we minimize the chance of complications. Dental radiographs are taken, and can be retaken at a later date, to ensure the integrity of the teeth. I think this is one of the main points: if canine blunting is done, it has to be done correctly!





## toys

*Do commercial toys provide long-term enrichment for single- or group-housed dogs when no person is around to entice them to play with the toys?*



- In my experience, it very much depends on the dog. Some dogs will readily play with the toys whether a human is involved or not while others aren't the least bit interested even if a human is there. This holds true for play toys as well as chew toys.
- This has been my experience as well: the attractiveness of a toy depends greatly on the individual dog. However, the dogs in general make it overwhelmingly clear by the behavior they show when people enter their room that they much prefer the human contact and interaction to any other environmental enrichment. Often, this makes them pay attention to the toys even less, as they are far too busy trying to get attention from the human. I've secretly watched the same dogs, who seemed to have no interest at all in a toy, pick up the toy and play with it when they thought no humans were near or watching.
- We tried different commercial toys at our facilities. Some dogs like certain toys while others have no interest in them. It

seems to be the individual dog, not the breed, who enjoys certain toys. We rotate the toys weekly or more frequently. I have the impression that the more often we exchange a certain toy, the more attractive it becomes for the dogs.

Many of the dogs enjoy a tennis ball, but we don't leave it in the pen overnight since nothing would be left of the ball the



next morning. This automatically enhances the attractiveness of the tennis ball: it's always new again the next day.

We have an elderly beagle who loves his blue hard plastic ball. He noses that around and flips it in the air all the while barking up a storm. It is really fun to watch. He does it on his own, no one is rolling the ball to him. Most of the other dogs show no interest in this type of ball, but this particular dog just loves it.



- The majority of our dogs like the dumbbells. They show more wear than any other hard plastic or hard rubber toys they have in their kennels. Unfortunately, we cannot give any rubber items softer than a Kong™ toy because of protocol issues; this is a shame because the dogs all loved them. We had a big dog who actually snuggled with his squeeze-and-toss football; it broke my heart when I had to take it away from him.





I hiding?” After all, I care for animals and do what I possibly can to make life easier for them. Nowadays, I have no problem talking with interested people and critics alike about my work in the research lab.

I always start by making it clear that, as far back as I can remember, I always wanted to work with animals and to make a positive difference in their lives. When I first came into the animal research environment, I didn't know how long I would stay, but it didn't take me long to realize that here was the place where I could make a big difference; that was 23 years ago. I explain to people that, while I do find research interesting, it is the animals that brought me here and keep me here. I have been fortunate enough to have been able to bring about positive changes in the way they are kept and treated. This has been, and still is, very rewarding!

I once was asked how an animal lover, such as myself, could ever do what I do. My reply was, “would you rather have someone who doesn't love and respect animals work with them?” This was not rude, but it ended the conversation about my job.



- I have had people leave parties when they found out what I do. Fortunately, that is rare; most people listen, and I will explain to them that my job as an animal technician is to love animals, make sure they get the best care, use them well and, unfortunately, kill them well.
- I don't say a lot about my job unless I can trust the other person, and even then I do not go into details. The few people with whom I have discussed my work were at first rather critical, even judgmental, but after listening to me changed their view and told me that they do understand that research laboratories need caring technicians who do the daily work with and for the animals.
- It is no problem for me to talk about my job without fear everywhere I go here in the U.S. I tell people truthfully what I do, and how my job is precisely where I should be because of the level of concern I have for the welfare of animals in general and those in laboratories in particular.
- It is my personal experience that most people—not all!—quickly stop their accusations when you tell them honestly what you are actually doing, and how your presence alleviates rather than causes suffering to animals in research labs.

*Many people think that working as a caretaker, technician or veterinarian in a research laboratory implies that you condone the research that is done, even if it may cause suffering and death to animals. How do you respond to this assumption?*

- When I am drawn into a discussion on biomedical research and testing, I do my part to steer away from the question of pro or con animal experimentation. Yes, I do have a personal opinion on that issue but it is of no relevance, simply because I do not perform invasive experiments with animals myself. My mission is to care for animals assigned to such experiments, so I do my best to make sure that the animals are, at least, properly housed and handled.
- If you come across as not agreeing that the research being conducted on the animals in your care is beneficial, you are going to send a negative message to the public about research in general. I can hear comments like, “she is actually working in the lab and does not even believe that the research is necessary.” That can hurt all of us in the field. I cannot imagine being able to justify to myself the use of animals for projects that I don't believe in.
- Exactly! That's the reason why I categorically refuse to be actively involved in a project in which I don't believe, either:
  - (a) because of its adverse implications for animals, or
  - (b) because of its scientific weakness.
- For me, the answer to the question if I believe that research is necessary is neither a *yes* nor a *no*. Based on my own experience and based on the literature that I have read, my answer would be that it all depends on the particular research protocol:
  - (a) yes, there are certain invasive research projects that have significant scientific merit and, hence, are justifiable because no alternatives are available;
  - (b) yes, there may be certain invasive research/testing projects that are necessary or legally mandated, but I am not in the position to argue for them because I am not an expert in that particular area of scientific research;
  - (c) no, there are certain invasive research projects that have insufficient scientific merit and, hence, are not justifiable;
  - (d) no, there are certain invasive research projects that are repetitive, hence are not justifiable because they are likely to cause unnecessary animal suffering;
  - and
  - (e) no, there are certain invasive research projects for which alternatives are available; they are not justifiable because they are likely to cause avoidable animal suffering.



## *How Can You Join the Laboratory Animal Refinement & Enrichment Forum?*

The purpose of this electronic discussion forum is the factual exchange of experiences about ways to refine the conditions under which animals are housed and handled in research institutions. The group is intended to serve the international animal care community in its attempt to promote animal welfare and improve scientific methodology by avoiding or eliminating husbandry-related stress situations. The forum is open to animal care personnel, animal technicians, students, attending veterinarians and researchers who have or had first-hand experience in the care of animals kept in research and education facilities.

LAREF is managed and moderated by Viktor Reinhardt, who reserves the right to accept or reject subscribers. If you want to join LAREF, please send a message to [viktorawi@yahoo.com](mailto:viktorawi@yahoo.com) indicating briefly your practical experience with animals kept in research laboratories, your current professional affiliation, and your interests as they pertain to the discussion group.