Cohabitating Dwarf Hamsters: An Examination of Research and Opinion

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There are 5 species of hamsters that have been domesticated as pets. The most popular of these species is the Syrian hamster, commonly called the “Teddy Bear” hamster. Syrian hamsters are solitary and must live alone after around 6 weeks of age. The remaining 4 species are considered dwarf hamsters, with one exception.

Chinese hamsters are typically referred to as dwarf hamsters due to their smaller size, but they are not a true dwarf hamster. They belong to a different hamster family, and are part of the rat-like species of hamsters. Like Syrian hamsters, Chinese hamsters must live solitary lives. Some people can and do keep pairs or small groups of Chinese hamsters, but these are considered to be outliers and such practice is not recommended. As well, Chinese hamsters are a restricted species in California.

The remaining species of domesticated hamsters all belong to the dwarf hamster family, or the *Phodopus* genus known as “hairy-footed hamsters”. These are the Campbell’s (Siberian), Winter White (Djungarian), and Roborovski dwarf hamsters. However, Campbell’s and Winter White hamsters are able to interbreed to create hybridized dwarves. It is believed that *all* non-Roborovski dwarf hamsters in North America are hybridized to some extent, except for hamsters from a select few breeders. Regardless of species, dwarf hamsters are considered social and can live in pairs or small groups. However, it is a challenge and should not be practiced by those new to hamster keeping. All too often, well-meaning folks are told by pet stores and backyard breeders that dwarf hamsters can live together, and before long there is bloodshed and injury (or babies!). For this reason, it is recommended that only experienced keepers attempt to keep social groups of dwarf hamsters.

Suggestions for Successful Cohabitation

1. Choosing a species

Research shows that while all domesticated *Phodopus* species are able to cohabitate, they each exhibit different cohabitation behaviors.

- Campbell's dwarf hamsters form family bonds and are enthusiastic in caring for their relatives.
- Winter White dwarf hamsters form strong attachment pairs, and show symptoms of depression if separated or isolated.
- Roborovski dwarf hamsters are considered non-confrontational, and are found in pairs in the wild.

It's also important to keep in mind that choosing a Campbell's hamster or Winter White hamster will likely mean you have a hybrid of both species. Therefore, you can expect some mixed social behaviors of the two species.

2. **Only choose related hamsters**

Dwarf hamsters naturally form strong family bonds, which works in the keeper's favor. This is because a new bond does not need to be established, as would be the case for two unrelated hamsters. Likewise, dwarf hamsters are incredibly protective of their family members. If an unrelated hamster were introduced to a related pair or group, it's very likely the family would kill the unrelated hamster. It's possible this reaction could be observed between an unrelated pair as well, out of the instinct to protect the "family" nest (that being their own territory).

Unrelated hamsters can and do live together in the wild, but this is typically observed in mating pairs. If a keeper were to incur the expense of neutering a male hamster to prevent mating, an unrelated opposite-sex pair could be successful.

3. **Choose the right sexes**

Campbell's and Winter White dwarf hamsters tend to do best in male pairs, with roborovski dwarf hamsters doing best in female pairs. This is supported in the research and anecdotally by advanced keepers, breeders, and rescues. Male Campbell's dwarf hamsters have strong instincts to care for their families, which does not decrease if they are neutered (showing it is not likely to fluctuate between hamsters with more or less testosterone). Male

Winter White hamsters also exhibit strong, lasting symptoms of depression when separated from their mate or socially isolated. They tend to have higher weight, decreased activity levels, and less robust nests. In contrast, female Winter White hamsters do not show significant changes in behavior if socially isolated.

Anecdotally, the author of this article runs a dwarf hamster rescue, with primarily Campbell's-leaning hybrids. There are *far* fewer cases of bullying among male hamsters, and it is rare to need to separate male sibling pairs or groups. Females tend to not only exhibit more bullying behaviors, but these behaviors are more likely to escalate to injury. It's not recommended for non-experts to attempt female cohabitation of non-roborovski dwarf hamsters.

That stated, breeders and keepers have found the most success in keeping female Roborovski hamsters together. There tends to be less fighting and fewer instances of falling out.

4. **Keep pairs rather than groups**

This suggestion makes sense on the surface, simply because there are fewer animals and personalities at play. However, this is also supported by research, which indicates that all *Phodopus* species of hamsters choose to live in pairs in the wild. Of course, this tends to be a breeding pair, but the same benefits may exist for same-sex pairs as well. There is the tendency to form strong attachment bonds between two hamsters, which would not be likely occur at equal levels between 3 or more animals. That can lead to more bullying behaviors, as a pair with a stronger bond may lash out at another hamster out of their instinct to protect one another.

5. **Provide resources in excess**

Scheibler & Wollnik (2009) stated that for rodents, "complete coexistence is only possible in conditions of surplus." For decades, folks have suggested the "two of everything" approach to successfully keeping hamster pairs. This means that you should have duplicates of all important cage accessories, ideally at opposite ends of the enclosure–two or more houses, wheels, water bottles, food bowls, etc. While this can be successful, it can also create a territorial divide where each hamster protects their half of the cage. The ultimate point is to

provide enough of all resources in excess, but it's more successful if all resources are integrated *throughout* the enclosure. That way, neither hamster feels obligated to fight for their share. While each hamster may claim favorites, they are required to hold the same territory in doing so.

6. **Make cage changes slowly**

Similar to the point above, hamsters tend to claim new spaces and objects as their own territory to be defended. Successful breeders and keepers suggest that if you need to upgrade a cage for a cohabitated pair, you should do so slowly over time. Changing from a small cage to a large cage, for example, may cause the hamsters to fight for the new "resource" of space. The hamsters may be more likely to create a divide and retreat to their own sides of the cage. Changing from a small cage, to a medium cage, and finally to a large cage allows the change to happen gradually, and none of the new resources seem overly valuable.

Of course, this can be difficult as one doesn't want to have to buy a temporary "medium" enclosure just for the purpose of upgrading. In such cases, it's recommended to block off part of the new cage with cardboard for at least a few days.

7. **Understand normal and dangerous behavior**

One of the major reasons that people have come to believe dwarf hamsters can't cohabitate is because of the misidentification of normal squabbling. As stated, it's recommended to keep related pairs of hamsters together. Like human families, hamster families will have normal, minor arguments. During these disagreements, the keeper might hear squeaking and see "punching," where the hamsters paw at one another. The keeper might also see the dominant hamster pin the submissive hamster on their back for a few seconds. This can look and sound concerning to the untrained eye, but the key is to keep watching. The argument should end within a minute or two and should contain no injurious behavior. These tend to occur during periods of change or in response to new resources. For example, the hamsters may argue while in a carrier during a cage cleaning, or in response to food being added to the cage.

There is a possibility that paired hamsters will need to be separated, of course. It's helpful to keep an eye out for excessive chasing behavior, as that can indicate a more serious fight is likely to occur. Some chasing is part of normal play, but you should be able to tell if one of the hamsters looks fearful. The keeper should also monitor normal living behaviors to see if one of the hamsters is scared to access resources. While it's normal for one hamster to be larger than the other, you should not see any weight loss in either hamster. Both hamsters should be able to comfortably approach the wheels, food bowl, and water bottle/bowl without being harassed by the other. Finally, separate if you see blood at any point.

8. **Avoid separation during routines**

Keep the hamsters together whenever you need to remove one from the cage, if at all possible. Hamsters rely greatly on their sense of smell, and separating one of the hamsters can change their odor. Their friend may not recognize their scent–or feel threatened by their change in scent–once they return to the cage. This means that if one hamster needs to visit the vet, both should come along. Likewise, they should be kept together whenever you take them out to play or visit.

The Science

Campbell's Dwarf Hamsters

Cohabitation is, of course, important to reproduction–but not only in the ways you might think! Kentner et al. (2010) found that Cambell's dwarf hamsters are paternal animals, and will help care for their young. This was believed to be due to hormonal changes that occur after conception, whereby testosterone converts to estrogen or the hormones exist in balance, producing a strong parental instinct (Elwood & Stolzenberg, 2020). However, while castration was found to substantially reduce (by 90%) the presence of testosterone and estradiol in Campbell's dwarf hamsters, it did *not* affect the parental instincts (Hume & Wynne-Edwards, 2005). Hamster fathers in both the castrated and control group were highly responsive to their pups' needs, and retrieved displaced pups to return them to the nest without delay (Hume &

Wynne-Edwards, 2005). In the castrated group, males lost significantly more weight during pup rearing–a known indicator of parental involvement (Hume & Wynne-Edwards, 2005).

Of course, in addition to caring for the young, Campbell's parents are able to successfully cohabitate. Moreover, this is not due to individual personalities, but due to pre-programmed biological changes–indicating this effect happens across all members of the species. The presence of both parents also greatly benefits the young themselves. In an older study, Wynne-Edwards & Lisk (1989) discovered that in Cambell's hamsters, the presence of the male increased pup survival to between 95-100%, compared to 47% when the male was absent.

Cohabitation is not just found between mating pairs, however. Older siblings also help to raise newborn pups, interacting with their siblings in the nest, and retrieving displaced pups quickly (Wynne-Edwards, 2003). Juvenile Campbell's dwarf hamsters show quicker response times and reliability in retrieving the displaced pups, but Winter White young show similar, if somewhat inconsistent, care (Wynne-Edwards, 2003). Overall, these factors indicate that Campbell's hamsters are born somewhat predisposed to tolerate social living, at least under certain conditions.

Roborovski-Specific Research

There is less research on the cohabitation of Roborovski dwarf hamsters, perhaps because it seems universally accepted that they live in pairs in the wild (Scheibler et al., 2013). Moreover, they have been shown to share territory with other species of rodents, including jerboa, jirds, long-eared hedgehogs, and Mongolian gerbils (Scheibler et al., 2013; Scheibler & Wollnik, 2009). Roborovski dwarf hamsters are able to successfully share space due to their foraging behaviors. Interspecies aggression, in the study by Scheibler et al. (2013), was found between Roborovski hamsters and jirds, who do not possess cheek pouches. Therefore, jirds tended to defend food sources as they are more dependent on the immediate nutrition. It is notable to state that Roborovski dwarf hamsters did not exhibit aggressive behaviors when

sharing a food source, either with one another or another hoarding species, such as jerboa. Roborovski hamsters are also assumed to be a subordinate species, at least in relationship to more dominant, aggressive species such as the Mongolian gerbil (Scheibler & Wollnik, 2009). The study did show a preference for interspecies avoidance–that is, Roborovski hamsters consistently chose to avoid contact with a gerbil in the same enclosure. This behavior was not noted when hamsters resided in same-sex litter groups.

The Depression Model in Winter White Dwarf Hamsters

Crawley (1984) investigated the bonding behaviors of first generation Winter White dwarf hamsters. Unrelated juvenile hamsters were placed together and allowed to form mating pairs. The pairs were then given their own cages (i.e. two hamsters per cage) and allowed to remain together for three weeks. During this period, numerous behaviors and reactions were recorded, including body weight, physical activity, nesting behaviors, and grooming behaviors. The hamsters were also exposed to gentle handling. The hamsters were then isolated and the same factors were examined.

Separation appeared to cause an increase in wheel running for isolated females, and a decrease in wheel running for isolated males. It follows that weight gain increased in separated males. In the cage, the nests of separate males tended to be flat rather than fluffed. Body fur showed a reduction in grooming behaviors. When handled, separated hamsters were more likely to bite and vocalize displeasure. These responses to separation are believed to be attributable to a “learned helplessness” model of depression, and this appears to be more strongly experienced by male hamsters. The increase in wheel running and aggression to humans may be attributable to anxiety in female hamsters, but this was not a conclusion of the study.

Imipramine, a tricyclic antidepressant, was administered to separated male hamsters and was shown to reduce some of the effects of separation. Males treated with imipramine showed some increased exploration behaviors, but this did not affect body weight. A follow-up

study (Crawley, 1985) found that a MAO-I antidepressant, Tranylcypromine, was able to successfully reduce the effects of depression within 14 days, producing a decrease in body weight and increase in exploratory behaviors.

Notably, this study could differentiate whether these effects are attributable to pair-bond separation or isolation in general. It's possible that this effect could also be observed in same-sex groups that later experience isolation. However, the findings do indicate that male Winter White hamsters are more sensitive to separation and thus more prone to depression.

In Wild Populations

Cohabitation is also supported through study of wild dwarf hamster populations. In the wild, Campbell's dwarf hamsters maintain large home ranges. The home ranges of female dwarf hamsters do not typically overlap, but males hold much larger ranges that overlap numerous females (Wynne-Edwards, 2003). The home ranges of Winter White hamsters are much smaller than those of Campbell's, and exhibit complex overlap patterns. Typically, same-sex individuals do not overlap territories, but each overlaps with numerous members of the opposite sex.

Further, female Winter White hamsters have been found to respect the scent marking of other females, and choose to place marks adjacent to–rather than overlapping–the marks denoting the territory of another female. These factors show the ability to tolerate social situations and respect for one another's territory. Likewise, Campbell's dwarf hamsters have been shown to share burrows with different species of pikas, jirds, and gerbils (Cothran, 2004). This indicates that territory sharing is not only for the purposes of reproduction or due to familial bonds, but because they are a social species.

Discussion

While Campbell's dwarf hamsters and Winter White dwarf hamsters are studied and presented separately, it is important to remember that virtually *all* of these hamsters available in the United States are hybridized. That means they will exhibit the social tendencies of both species, so information on both species is applicable. Therefore, a hamster that looks to be a

Campbell's-type might also exhibit depressive symptoms if separated from their mate, as seen in Winter White hamsters. Likewise, while Winter White dwarf hamsters are not traditionally monogamous, a Winter White-leaning hybrid dwarf may still exhibit monogamous behaviors more attributed to the Campbell's species.

It is also important to state that research is done on breeding pairs as researchers are often trying to determine natural behaviors, and hamsters would naturally choose opposite-sex pairs in the wild. It is not feasible or recommended for pet keepers to house opposite-sex pairs together, as they will mate and produce many offspring. So, it is important to take this information as a basis for social behaviors, and not try to perfectly recreate it. For example, the "Depression Model" section notes that depression may be seen as a result of social isolation rather than separation from a mate. That means that it's possible a hamster would still exhibit depressive symptoms if isolated from a same-sex sibling. In short, the research might be limited to mating groups, but the information can still be applied to same-sex groups.

Finally, the references used for this article are kindly provided and hosted for everyone to read at: Cohab

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