

## Behavioural Science

### **Differences in strategies of aggressive fighting in three species of gerbils: a reflection of a social or solitary way of living**

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It is likely that animals living in communities should develop non-injuring ways of conflict resolution. A comparative study of aggressive fighting strategies in closely related species provides a good approach to test this idea. In the present study we measured intraspecific male-male conflicts in a neutral arena in three species of gerbils, graded by their level of sociality, from the least social pallid gerbil *Gerbillus perpallidus*, to the more social Mongolian gerbil *Meriones unguiculatus* and the great gerbil *Rhombomys opimus*. From videotapes we recorded winner-loser distances, durations of interactions and intervals between them using scan samples every second. We found that all non-aggressive patterns were similar in all the species and were directed to maintain a maximum winner-loser distance as long as possible, whereas the aggressive patterns showed prominent differences between species. The great gerbils used a strategy of delaying conflict, applying mostly weak distant threats and standing immobile in static postures for a long time, with rare short bouts of contact threats or overt aggression. The Mongolian gerbils used a strategy of quick short interactions, often with tactile contact. Rivals supported threat postures or moved simultaneously, keeping inter-body distances unchanged. The pallid gerbils showed a very tough strategy of fighting, characterised by high levels of overt aggression, with fast changes of both distances and behavioural actions. The data showed that the fighting strategies were in good accordance with species-specific differences of social organization.