

Pre-publication copy

Broom, D. M. 2015. New research relevant to companion animal welfare.
Companion Animal, 20, 548-551.

New research relevant to companion animal welfare

Donald M. Broom

Emeritus Professor of Animal Welfare
Centre for Animal Welfare and Anthrozoology
Department of Veterinary Medicine
University of Cambridge
Madingley Road
Cambridge C3 0ES
U.K.

Abstract

The many studies published recently on cognition, welfare assessment and practical management of companion animals inform us about what we can and should do to improve welfare. Hence better advice can be offered on aspects of training, living conditions, problem situations and genetic selection. Evidence concerning the impact of dogs and cats on wildlife and the unsuitability of many animals as pets may help to prevent some problems.

Key words

Welfare, sentience, pain, fear, breeding, unsuitable pets.

Introduction

Some of the recent research developments that inform us about companion animal welfare are summarised in this article and by Broom (2014), Broom and Fraser (2015).

Sentience, cognition and learning

Many recent scientific studies have demonstrated that companion animals have more sophisticated brain function than had previously been thought. For example, parrots have some learning abilities that are better than those of apes so bird-brain has a new meaning (Pepperberg 2000, Pepperberg and Hartsfield 2014). In addition to studies of how clever the animals are, there are results indicating capacities to have positive and negative feelings. This capacity is referred to as sentience, a word now known to apply to all vertebrates and some invertebrate animals, as explained by Broom (2014). It is now clear that each individual animal has brain mechanisms that allow it to control its interactions with its environment, if it has adequate conditions and treatment, and that having such control is key to good welfare. Some of these abilities are directly relevant to trying to cope with humans. For example, Miklósi and others have shown that dogs can efficiently assess some human behaviour, such as pointing and gaze direction, and hence deduce human intentions (Miklósi et al 2005, Virányi et al 2008, Ittyerah and Gaunet 2009, Horn et al 2012). This facilitates control by the dog of human-dog interaction situations and increases the

likelihood of good welfare. Also dogs that do not receive a reward that others do get are disturbed by this experience (Range et al 2009); this also has implications for training and welfare.

Assessing pain

The assessment of welfare in companion animals has developed rapidly in recent years (Broom and Fraser 2015). Research on pain assessment in mammals has produced new behavioural measures that have been validated by comparison with physiological and clinical measures. For sheep, goats, horses, rabbits, rats and mice, facial grimaces can be scored, after some observer training, and used to identify chronic or acute pain. For example, Keating et al (2012) showed that the rabbit grimace scale is the best method for assessing pain in rabbits. It may be that some similar scales will be validated for other species but some of the facial movements are difficult to see in individuals with much facial hair. It is also necessary to use other measures as if people only look at rabbit faces, abdominal pain can be missed (Leach et al 2011).

Fish are widely kept as pets and there have been major, recent developments in pain assessment in fish species. Fish have a pain system that is very similar to the system in mammals or birds, except that the analytical centre is not in the same part of the brain (EFSA 2009, Broom 2014). Since fish also have good learning ability, effective behavioural adaptations and hypothalamic-pituitary-inter-renal gland responses that produce cortisol in emergency situations as does the mammalian HPA axis, the term welfare is just as applicable to fish as it is to mammals.

Assessing fear and anxiety

Problems for dogs that lead to indicators of poor welfare include: lack of social contact, separation anxiety, fear of people, fear of other dogs, fear of environmental events like thunder, and chronic disease conditions. Dogs may show stereotypies, which indicate at least temporary difficulties with their environment and, if prolonged, serious welfare problems. However, some dog owners and the public may just regard this behaviour as amusing. Tail-chasing is a stereotypy in dogs that has been linked to several disease conditions and major environmental inadequacies but a review of comments made about videos of the behaviour on the internet site YouTube showed that the majority of people just commented on how funny the dog was (Burn 2011). Indeed, many people will say that companion animal behaviour is funny when they should be trying to understand what problems the animal has and seeking expert advice if necessary.

Indicators of anxiety in dogs listed by Sonntag and Overall (2014) include: urination, defecation, panting, increased breathing-rate and heart-rate, trembling, lip-licking, nose-licking, hypersalivation, vocalisation, freezing, pacing, attempts to escape or hide, not meeting gaze, and changes in activity, grooming and social behaviour. It is helpful to dog owners to know that these behaviours can be anxiety indicators. Research by Arhant et al (2010) showed that small dogs are more likely to be punished for anxiety behaviour than large dogs, and that training of small dogs is more inconsistent.

In a survey of dog owners, Blackwell et al (2013), 83% reported that their dogs showed fear of fireworks and 65% reported fear of thunderstorms. Other loud noises, such as gunshots, also elicited fear responses in some dogs. Sudden loud noises may be frightening because of the dog's uncertainty about what the noise is and what potentially risky situations may follow. The advice of animal protection societies to keep dogs in a calm, preferably familiar environment when they might be exposed to fireworks or thunderstorms would seem to be justified. Much fear may also be shown when a dog perceives that there is a high risk of attack by a human or another dog.

Harsh training methods

The general trend in the training of dogs and other companion animals has continued to be a reduction in harsh methods. A survey of training methods showed that people who used punishment rather than reward were more likely to have dogs with problem behaviours (Hiby et al 2004). An exception, in many countries, to the trend to minimise punishment has been the increased use of shock collars. Careful and compassionate use of shock collars can occur without major welfare problems. However, the problem with the equipment is that it is possible to increase the shock level, and the frequency of administration of shocks, to the point of very poor welfare and hence extreme cruelty. If these collars are available to the public, some people will misuse them deliberately and others will do so accidentally. Schalke et al (2007) recorded heart-rate, cortisol concentrations and behaviour in dogs during the use of shock collars and concluded that the welfare of the dogs was often very poor so the general public should not be permitted to use them. As a consequence of several studies and experiences of this kind, shock collar sales and general use are banned in more and more countries.

Inadequate disease treatment

There are some dog, cat and horse owners who obtain veterinary treatment for their animals at the first indication of a problem. Other owners allow extreme suffering associated with clinical disease without seeking veterinary treatment. A third group use homeopathic methods, many of which have been demonstrated not to benefit the animals at all, or herbal remedies which have not been shown to be useful treatments. Recent research on several species, mainly farm animals, has quantified the extent of poor welfare associated with different levels of clinical disease. Such research is needed in companion animal species and should capitalise on the personal experience of those in veterinary practice.

The most frequent occurrence of poor welfare associated with untreated disease is in animals whose monetary value is low. The moral obligation to avoid causing poor welfare in a pet animal is exactly the same for a valuable horse and for a former shelter cat, a rabbit or a guinea pig. Veterinary surgeons should not be afraid to say this, even if they think that they might be perceived to be trying to increase work for their own practice.

Dogs and cats attacking humans, companion animals or wildlife

Some dogs are kept and trained for guarding purposes. Whether these dogs guard property or individual people, the person responsible has obligations to prevent injury to other people and other wild or kept animals. Research on people who train dogs to attack people, many of whom are involved in criminal activities, makes clear the risk posed by such animals (Maher and Pierpoint 2011).

Children are more likely to be the subject of dog attacks and it has been found that children often fail to recognize that a dog baring its teeth is not smiling. The public, especially the young, need to know that some dogs can be dangerous and they need to be taught about dog signals.

The impact of pets on wildlife welfare and conservation is often ignored by pet owners. Some cats and a few dogs are kept for rodent control and the most responsible owners manage them so that they only kill target species. Recent publications quantify the impact of feral cats and dogs on wildlife and on pets. In some countries these effects are so large that whole species of wild animals are threatened. This would be argued by most people as a morally unacceptable consequence of human action that should be remedied but there are some pet owners who lobby against some or all forms of feral dog and cat control (Bonacic pers comm).

A more immediate problem, further quantified in published studies, is that some pet cats kill large numbers of wild mammals, birds, reptiles and amphibians (Woods et al 2003, Loss et al 2013). The argument of the owners of killer cats, that this is natural behaviour and therefore acceptable, is illogical as the owner is using the cat as a companion and the cat would not be there unless the owner kept it there, so the owner should take responsibility for the actions of the cat. It is my view that all cats allowed to roam should be required to wear a bell or similar warning device, fitted so that the cat cannot be injured by wearing it. Where cats are known to still kill and maim other animals, they should not be allowed out of the house or an enclosed yard. The improved welfare of the cat if allowed out does not justify the substantial negative effects of the cat on wild animal welfare.

Meeting housing needs including need for social contact

The welfare of rabbits is improved by providing them with enrichment materials (Broom and Fraser 2015). Rabbits, at least females and young individuals, need social companions, so should not be kept in isolation, and need opportunities to hide from perceived danger, such as aggressors. Some rabbit rehoming charities offer to bond a rabbit with another so that both can be taken home. Rabbit behaviour and welfare may be positively affected by repeated handling carried out by familiar people but negatively affected by handling if they have not had much previous experience of handling. Guinea pigs are also social and, like rabbits, should be reared and kept in groups. This is true for most rodents except golden hamsters. Male rabbits that have not been socially reared may have to be

kept individually but castrated male rabbits can be kept with females.

Some kennelled dogs have too little variety in their environment. In a study of dogs kept for 6 months in kennels, Titulaer et al (2013) found that they rested for longer, played less with people when given the opportunity, played more with objects, and showed more barking and growling at strange dogs than did dogs which had been in the kennels for 1-12 weeks. However, it was not possible to deduce from this study whether these differences were a cause of people not choosing them for rehoming or a consequence of the long period in the kennel environment.

The features of a cat's environment that lead to good welfare have been described in detail by Rochlitz (2005a,b). Cats kept in groups prefer to be able to sit on a raised platform or shelf rather than on the ground. The possibility of looking out over the immediate environment seems to be important to cats. A range of other effective enrichment materials that meet the needs of cats is also described. Another hazard for free-ranging cats is the motor vehicle. Rochlitz (2003a,b, 2004a,b) found that younger cats and male cats were more at risk of being killed on roads. It would seem useful to give the cat the appropriate experience of roads described by Rochlitz so that they learn how to avoid the danger.

Mutilations for human convenience

In many countries, some dog breeds routinely have parts of their anatomy surgically altered for cosmetic reasons, associated with breed standards. Examples of dog and cat mutilations include: the docking of tails, as seen in the Corgi, Boxer, Poodle, Rottweiler and other breeds; the cutting of ears to make them pointed; removal of vocal apparatus; removal of teeth and claws; castration and spaying. There is now better information on the use of the tail and ears in normal communication by dogs and hence the extent of poor welfare caused by the mutilations (Broom and Fraser 2015 chapters 14 and 37). We also know more about the extent of pain during and after the operations and the frequency of occurrence of neuromas. Dog behaviour is substantially altered by castration, with reduction in roaming having some positive effects on risk of poor welfare but social role change being negative for many castrated dogs. It would be useful to have better information about the longer term effects of spaying.

The removal of the claws of cats has substantial effects on the ability of the cat to defend itself against other cats and therefore, like the removal of any biologically important ability, can lead to poor welfare in mutilated cats. The operation itself will involve some pain to the cat, even if anaesthetic and analgesic are used during the procedure, as the claws contain sensitive tissue.

Breeds with problems

Poor welfare resulting from selection for harmful characteristics in dogs has continued to get worse in recent years. The number of inherited disorders in the 50 most popular dog breeds in the United Kingdom was 396 in a survey by Asher et al (2009). This is very much greater than the number of disorders reported 50

years earlier and some of the increase is a result of continued selection without proper regard for dog welfare (Sonntag and Overall 2014). The majority of people nowadays consider that it is morally unacceptable to continue the genetic line if a dog is likely to pass on genes and hence have progeny that would have any of these characteristics. We can therefore conclude that breeds such as the Bulldog, French Bulldog, Pug, Pekingese and Shar-Pei should cease to exist, or at least exist only in the form that they had a hundred years ago, as should many genetic lines of the English Setter, Dachshund, Boxer, Dalmatian, Keeshond, German Shepherd, Golden Retriever, Cavalier King Charles Spaniel, etc. However, some breeders do not terminate such lines. All dog owners should find out what disorders their animals have (Packer et al 2012, Sonntag and Overall 2014) and no owner should allow their dog to breed if it has a genetic disorder. The actions by the Kennel Club need to be more drastic to avoid major welfare problems and breeders should be prosecuted in more cases.

Which animals should not be kept as pets

Many species of animals are unsuitable as pets, even if they were bred in captivity. Some are dangerous to people. Many others are unable to adapt to the conditions that can be provided for them in human homes. Animals living in the wild are very rarely able to cope with transport or adapt to captive conditions and human proximity so the law should stipulate that no wild-caught vertebrate animal should ever be kept as a pet.

How should we decide which animals, bred in captivity, are appropriate as pets? A simple criterion for considering the suitability of a species is: "will such animals stay with the owner if given the opportunity to leave?" If the most of such animals leave when the cage or other door is opened, do not keep animals of this species as a pet. For individuals already in captivity, if possible, give it to someone who can provide a better environment. Pet rabbits will often not stay with humans if they have the choice so they should either be carefully adapted to humans or not kept as pets. Many caged birds would not stay with the owners if given the opportunity to leave so they are prisoners rather than companions. As explained above, the most important evidence to use in deciding which species to keep is from scientific evaluation of animal welfare in various captive conditions. Some species show very frequent indicators of poor welfare when kept in cages, especially small cages. Engbretson (2006) concluded that parrots are not suitable to be companion animals because of the widespread indications of poor welfare in parrots kept in the home. All animals should only be kept in conditions where they can show normal locomotion for a short period, perhaps 30 seconds. For all birds this would mean a large aviary and for small mammals, a usable, protected area several metres long.

KEY POINTS

Cognitive ability in birds and mammals is better than most had thought.

Pain may be assessed in several species by facial expression.

Fear and lack of social contact can be big problems for companion animals.

Shock-collars are unsuitable for public use.

Children should be taught about dog behavioural signals.

Feral dog control is important for welfare and conservation.

Cats not kept for rodent control should be allowed free outside access only if wearing safe devices to warn wildlife. Persistent killers should be restricted.

Dogs of some breeds and genetic lines should not be bred if the welfare of their offspring is likely to be poor.

Wild-caught vertebrates should not be kept as pets.

Companion animals should only be housed in conditions where they can show normal locomotion for at least 30 seconds.

Conclusions

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