

CHAPTER 7: THE BEHAVIOUR OF CATS AND DOGS

In this chapter we will look at the behaviour of cats and dogs in order to understand what is normal behaviour for them. Then we will discuss abnormal behaviours and some ways of dealing with these problems.

CATS

VISION AND OTHER SPECIAL SENSES

Cats are quite near-sighted and the eyes are reasonably fixed in position (requiring head-turning to look around) (Raleigh, Scott, Jackson and Jackson, 1976). They are dichromats and can see colour but their colour vision is limited (Beaver, 1992). They can see very well in dim light as they have a high proportion of rods (which have a low threshold for activation by light energy) in the retina. Cats' eyes have tapetum lucidum behind the retina to reflect light and aid in night vision (Beaver, 1992).

The pupil of the cat's eye can change in aperture, opening from about 1 cm in diameter down to a narrow slit that is barely visible. In the dark the cat's pupil opens much wider than ours and collects the light so it can see objects we are unable to (Hart, 1980a). The cat's ability to change pupil size is very important as an adaptation that allows it to hunt at night (Beaver, 1992). Cats have a large binocular vision, 100-130°, and a panoramic field of 250-280°.

The eyes are fully open at about day 17 of life (Beaver, 1992). However, vision is the last sense to develop fully (Thorne, 1992), needing postnatal time to mature (Beaver, 1992). The light blink reflex, which develops at about day 50 of gestation to day 13 of life, disappears around day 21, due to the development of acute pupil control (Beaver, 1992).

Cats have acute hearing and can hear sounds in the range of 10-60 KHz (human is in the range of 18-20 KHz), and can produce ultrasonic emissions. The cat's outer ear can be directed towards the source of sound (Hart, 1980a). The ear pinna can rotate about 180° (Beaver, 1992) and, by using both ears, cats can accurately locate sound (Raleigh et al., 1976).

Bradshaw (1992) states that a cat's ability to hear ultrasonic sounds is probably an adaptation to hunting small prey, such as rats, that emit them, as cats are not known to make those sounds. Queens and kittens may use ultrasound as an identifying contact call. More work is needed to determine the extent of ultrasonic sound emission (Bradshaw 1992).

The cat's ability to hear very small tone differences at high frequencies and at low frequencies decreases with age, especially at higher frequencies (Beaver, 1992). The efficiency of the cat's middle ear decreases at frequencies above 10 KHz due to mass limitations in the ossicles (Bradshaw, 1992).

Hearing becomes fully developed by about four weeks of age (Thorne, 1992).

The cat has a much more acute sense of smell than

we have, and in addition to having a larger olfactory system, they also have the vomeronasal organ (Jacobson's organ). It is thought that the flehmen reaction (curling of the upper lip) is a behaviour that exposes the vomeronasal organ to sex pheromones present in the female cat's urine or vaginal area (Hart, 1980a). Flehmen is most frequently displayed by tomcats (Beaver, 1992).

Scents are used for identification and communication in adult cats (Thorne, 1992). Scents are also used to explore and habituate new environments (Beaver, 1992).

The sense of smell is highly developed at birth, and this is very important as it guides the kitten to the mammary gland for nursing (Beaver, 1992). Kittens use smell to orientate themselves and recognise home, littermates and mother. Adults use it to mark their home territory (with urine) and when meeting (Beaver, 1992). Cats that lose their sense of smell because of a viral infection, also lose their appetites, change their toileting habits, and don't indulge in courtship (Bradshaw, 1992).

SOCIAL ORGANISATION AND DOMINANCE HIERARCHIES

Cats are loners and avoid interactions with other cats, except when with a mate, with young, or if several belong to the one household. The area travelled during normal activities is known as the home range (Beaver, 1992. Bradshaw, 1992. Thorne, 1992). It is much larger for males than for females (Bradshaw, 1992). The range may overlap other animals' ranges (Thorne, 1992). Studies on free-ranging cats (Fox, 1975), showed that cats have a home territory and a home range that consists of places for resting, sunbathing and watching. These places are connected by a network of paths and are visited regularly. In a neighbourhood, cats have an order of dominance, which depends on time and place. If a low-ranking cat has already entered a narrow passageway and a high-ranking cat enters, the less dominant animal will sit and wait until the way is clear. Cats go to great lengths to avoid meeting another cat on a pathway, and chance face-to-face encounters lead to fighting and chasing and the development of a dominant-subordinate relationship. Subordinate males can be pushed around in a dominant male's home range and essentially become nomads (Liberg, 1981, cited in Thorne, 1992).

If a group of cats is maintained in colony pens, they should be provided with shelves so they can 'own' one and retreat there from other cats (Hart, 1980a). The cats will work out an arrangement where certain ones use the floor at different times to others. Rubbing may help reinforce social positions, with subordinate individuals generally rubbing more dominant conspecifics (Macdonald, Apps, Carr and Kerby, 1987, cited in Thorne, 1992).

The socialisation period is the time when all primary social bonds are formed and is the most important period during the cat's life (Beaver, 1992). Active social con-

tact with more than one adult cat at some crucial development stage is necessary for an adult cat to adapt later to social living conditions (Bradshaw, 1992).

Primary social contact is between a female and her kittens, and the mother's behaviour is known as epimeletic (care-giving) behaviour (Beaver, 1992). A kitten also displays epimeletic (care-seeking) behaviour when in a strange environment (Beaver, 1992).

SCENT MARKING

1. *Scratching*: Tree or furniture scratching leaves a visible cue and, at the same time, foot gland secretions give the scratched object a scent that can be detected by an intruder (Ewer, 1963).

This behaviour may be used as a form of stretching and cats are most likely to do it after waking (Beaver, 1992). The longer an object serves as a scratching medium, the more significant it is to the cat (Beaver, 1992) because it will represent greater territorial importance and the cat will have invested more in its territory.

2. *Spraying (scent marking with urine)*: This consists of backing up, raising the tail, which trembles, and spraying urine, usually on a vertical object. It is most usually done by tomcats and objects that are sprayed often tend to be located along territorial boundaries. The urine marks left can be identified by other cats, so track can be kept of their neighbours (Hart, 1980a). Spraying serves to bring the male and female together during the breeding season, and is commonly done at a height convenient for sniffing (Beaver, 1992).

3. *Cheek and head rubbing*: A cat often rubs its head or cheek against a chair, a table or a person's leg. We tend to think the cat is being friendly, but since Prescott (quoted in Fox, 1975) found scent glands along the cat's tail, on each side of the cat's forehead and on the lips and chin region, it appears likely that the cat is performing a type of scent marking of its special territory. This behaviour is important as a form of tactile communication in social groups. It also serves a purpose of reinforcing social positions (Thorne, 1992).

The interesting point about the cat's marking behaviour, compared with the dog's, is that a cat marks to warn other animals to stay away, but a dog marks to tell others he is there so they can join him.

The flank and tail are areas of the body more commonly used for cat to cat rubbing (Bradshaw, 1992).

In feral cats, marking is more usually done in front of conspecifics than when the cat is isolated, perhaps because it functions as a display of dominance (Bradshaw, 1992).

Marking is normally helpful in stretching muscles (Schwartz, 1997).

During human interaction it may be an indication of excitement (Thorne, 1992).

Marking can also be performed by any cat in a stressful situation (such as when there is a new cat in the house) (Beaver, 1992).

Head rubbing against a human seems more common once the cat's presence has been acknowledged (Beaver, 1992). This reflects the use of head rubbing between familiar cats.

GROOMING BEHAVIOUR

About 30% or more of the waking time of some cats is spent in grooming, which includes face washing, scratching the hair, coat and skin with the claws, licking the fur and pulling at the claws with the teeth. It is suggested that cats turn to grooming when frustrated in an action; this may reduce anxiety.

The most important function of grooming is to maintain healthy skin. It also removes parasites and dander, and relieves tension (Beaver, 1992).

Cats may socially groom if kept in social groups, such as when there is more than one cat in a household. (Turner and Bateson, 2000).

COMMUNICATION

Cats communicate with body postures and facial expressions (Fox, 1974). There are three basic categories: offensive threat, defensive threat and a passive crouched posture. The offensive threat is a stare, with body poised to attack; the defensive threat is spectacular, with the back arched, fur fluffed up and the tail straight up with the fur fluffed. The cat approaches the enemy sideways with prancing steps — the sideways approach and raised fur make the cat look bigger and fiercer; the passive crouch with tail down is a passive-submission display to appease an aggressor.

The mother and kittens may have an ultrasonic call that acts as a contact call (Bradshaw, 1992).

Olfactory communication is especially important to cat species with solitary habits (Bradshaw, 1992).

Cats also communicate using smell (such as spraying) and leaving visual signs (such as scratching) (Bradshaw, 1992).

Tactile communication (rubbing) may aid scent marking (Thorne, 1992).

Acoustic communication is important, especially when the cats cannot see each other, such as when it is dark, when they are separated (such as two cats on their own home territory), or when blind newborn kittens cry to attract their mother's attention (Bradshaw, 1992).

Sound communication includes a range of call types. Purring is in response to pleasurable contact, developed as a kitten when full of milk and resting with mother and littermates, which continues to adulthood, such as when petted by a human (Bradshaw, 1992). An inaudible purr is common in human presence (Remmers and Gautier, 1972).

The miaow is for greeting, the growl and yowl for aggression and the hiss and spit is a defensive reaction. Sudden, sharp pain may result in the pain shriek (Bradshaw, 1992).

The miaow is generally directed at humans (Turner and Bateson, 2000) and is rarely observed in inter-felid communication.

SEXUAL BEHAVIOURS

A female cat is polyoestrus during the breeding season and shows distinct oestrous behaviour. She is more active and nervous than usual and has a loud mating call to attract males. Ovulation is stimulated by copulation. The male approaches an oestrous female from behind or sideways as she assumes a receptive crouch,

elevates the pelvic region and holds her tail to one side. She also treads with the back legs. The male mounts and thrusts and the female gives a copulatory cry, and as soon as the penis is withdrawn the female becomes aggressive towards the male. There is a display of post-copulatory behaviour as she rolls and rubs on the floor (Hart, 1980a; Fox, 1975).

Females assume the receptive crouch (lordosis) before the male mounts; it is accentuated when the male grasps her scruff (Thorne, 1992).

The queen will display lordosis again several minutes after the initial display. The cycle of events will then be repeated and the repetitions can continue for up to two days (Bradshaw, 1992).

Prolonged contact by the male during proestrus is not tolerated by the female (Beaver, 1992).

Ovulation is stimulated by copulation, and one female may mate with a number of males in one oestrous period (Thorne, 1992).

MATERNAL-OFFSPRING BEHAVIOUR

Cats do not form pair bonds and the male leaves after copulation. When birth is close, the cat retires to a dark quiet place. When the kittens are born and the mother has licked them to stimulate respiration and cleaned them, she rests in a semi-circle around them. If a kitten crawls away she touches or licks it to bring it back. Nursing starts within an hour or two after birth and for the first two days, the mother remains constantly with the kittens. She also initiates nursing and a teat order develops among the kittens (Ewer, 1961) which reduces competition. Defecation and urination is stimulated by the mother licking the anogenital region. She keeps the nest clean by eating the waste, grooms the kittens and begins to play with them. By the fifth week, nursing time declines and the mother begins to teach the kittens predatory behaviour. The relationship between predatory and play behaviours has been studied (Caro, 1981) and it seems that predation develops later than social play; although some of the patterns are similar, others increase in development (e.g. chasing and being chased, or biting), while other behaviours decrease (e.g., decrease in the number of sequences containing three kittens). Fostering is easy and mother cats will readily adopt other young.

To stop her kittens chewing or biting her, the queen will initially growl at them. If this does not work she may hit the kittens on the nose, drag them away or turn and move away from them.

Maternal behaviour is the primary social pattern exhibited by female cats,

Kittens spend almost all their time with their mother or siblings for their first three weeks of life (Beaver, 1992 & Turner et al. 2000).

The queen often licks and awakens her kittens to stimulate them to begin suckling (Beaver, 1992).

The presence of littermates reduces the stress of new environments (Bradshaw, 1992).

There may be early-season oestrus synchrony (Liberg, 1981, cited in Turner and Bateson, 2000) resulting in litters of a few females being born around the same time. This would allow communal caring. Feldman

(1993, cited in Turner and Bateson, 2000) found that a queen involved in communal care would move her kittens more frequently. This may be because it would be safer per move than if she was alone, as the kittens at either site (where being moved from or to) would be guarded most of the time.

THE CATNIP RESPONSE

The catnip (a member of the mint family) response (Hart, 1980a) involves the leaves or extract of the plant. Between 50-70% of cats respond by sniffing, licking or chewing the material and head shaking and gazing into space are common. Some cats rub their cheeks and chin over the catnip, others paw or dig it. The response lasts for 5 to 15 minutes; it is triggered by the active ingredient nepetalactone and is mediated through the olfactory system.

The catnip response does not seem to be related to a sexual response or hunting/aggressive behaviour (Bradshaw, 1992).

Catnip is a strong stimulus to stop purring (Bradshaw, 1992).

The response is inherited on a dominant autosomal gene (Bradshaw, 1992).

ABNORMAL AND PROBLEM BEHAVIOURS

Here we'll try to cover most of the common behaviour problems. This is just an overview and the extent to which one can discuss individual therapies is limited.

When a pet displays behaviours that are unwelcome, they are described as behaviour problems. What vets and behaviour therapists have to consider is to what extent these behaviours are the normal responses to early social experiences, management and training. More important, perhaps, we have to distinguish changes in behaviour that have their origins in disease since to leave disease untreated while we go on to concentrate on a training or purely behavioural problem could be negligent and endanger the animal's life.

Behaviour problems are generally not abnormal behaviours. Cats, on the whole, exhibit fewer problems than dogs, although the evidence is less complete. Up to one third of all cats and dogs brought to vets for euthanasia are destroyed because of behaviour problems. This means that behaviour problems are certainly the most common cause of death in young animals.

One should also bear in mind that pets with behaviour problems that are tolerated may drastically reduce the owner's quality of life.

There are a number of things to bear in mind when reading about or discussing behaviour problems with clients. We are only going to cover these subjects very briefly. The idea here is to give some idea of the sort of therapy that can be applied to pets with behaviour problems. Never jump to conclusions about the nature of a problem behaviour. Owners often leave important bits of information out until you have committed yourself to a diagnosis. Don't give these tips as if they are quick fixes. Unless you have investigated the case properly you may well find that the unwelcome behaviours do not get better but instead get worse. This would be suitably embarrassing and can even result in legal action.

1. *Sexual problems*: Males may lack interest in copulating with a receptive female. This may be due to several factors: unfamiliarity with breeding environment, lack of experience, sometimes a hair ring develops around the glans penis which prevents intromission, or hormone levels may be low.

Breeding males should be conditioned to breeding activity by frequently copulating with receptive females.

Males that have been castrated may masturbate after being castrated (Schwartz, 1997).

The most frequent abnormal behaviour in females is the queen who appears to be in full oestrus but will not accept the male. Some females show preferences for a certain male so it is advisable to try the female with a different stud male (Hart, 1980a).

Females can experience pseudo-pregnancy if they ovulate but do not conceive. Robinson (Thorne, 1992) reports that a good way of reducing the number of oestrous cycles is to stimulate the vagina with a cotton bud. Because females may lose condition and even cause noise pollution with repeated oestrous cycles, some breeders use this technique.

2. *Excessive grooming*: This can cause skin irritation and loss of hair and is more common in Siamese and Abyssinian cats. Emotional problems can enhance the problem and it can be treated with corticosteroids.

Grooming the flanks and back may be a displacement activity displayed when the cat is confused or has been upset. Excessive grooming may occur if the cat is continually stressed (e.g., by a new cat in the house). Self-mutilation, such as grooming to a skin lesion, is very rare (Bradshaw, 1992).

Excessive grooming of her young by an overly anxious mother results in the newborn being less able to nurse because they are constantly disturbed, and they may die due to lack of nourishment and loss of body heat (Schwartz, 1997).

3. *Prolonged sucking*: This can become a vice in adult pet cats: tactile stimulation of hair and earlobe while being petted, evoke the nursing response.

Alternate kneading with the front paws typically accompanies sucking (Schwartz, 1997).

4. *Pica*: This is defined as an abnormal craving to ingest unusual substances and is said to occur when inappropriate objects (such as wool) are ingested (Schwartz, 1997). It is common in Siamese cats. Ingestion of the material being sucked can result in intestinal obstructions (Schwartz, 1997).

This problem, specifically in cats, can involve a variety of bizarre substrates, including rubber and electrical cable but most commonly it involves the sucking and the ingestion of fabric. It is seen in exotics, especially Siamese, which suggests a possible genetic link. But it has also been linked to a traumatic weaning process, separation anxiety (it can be precipitated by some types of stress), a deficiency of fibre in the diet and the lack of any opportunity to perform natural predatory behaviour. It is a serious problem and can lead to gastric obstructions and impactions, but also to incredible damage, especially when the cat generalises from wool to other fabrics.

Treatment for pica is to increase the fibre content of the diet (sometimes even provide very small quantities of shredded wool if the cat is looking for lanolin, but also give occasional laxatives). Restrict access to garments, and make the fabrics unpalatable, perhaps by sprinkling with eucalyptus oil.

Grass may be a part of a cat's normal diet or be eaten if the cat is nauseous. Grass eating is not a definite indication of internal parasites, as sick cats may not eat it and healthy cats may (Schwartz, 1997).

5. *Elimination problems*: Elimination in places other than the litter box is the most common behavioural problem cited by cat owners (Borchelt and Voith, 1981). These include urination, defecation and marking problems. They are usually complex problems which cannot be cured with any one type of treatment. The client and veterinarian have to devise strategies that may include moving the litter box, placement of food in the area where spraying occurs thus converting it into a food area or placing toys in the spraying area to make it into a play area. Castration may prevent spraying by an intact male and synthetic progestogens will often suppress spraying in castrated males or females. Reward and punishment techniques are not very successful for cats.

Elimination problems may include a refusal to use dirty litter. Also, physical elimination problems (pain) may teach cats to avoid the litter (Schwartz, 1997).

If a cat suffers enough social stress or predisposing circumstances it may begin to void outside its litter box (Schwartz, 1997).

In a multi-cat household, separate litter boxes should be provided for each cat so that any territorial conflict can be prevented (Schwartz, 1997).

House-soiling differs from marking in that it involves the deposition of faeces out of the litter tray and is usually a product of poor maternal care and/or poor training. (Persians seem to be over-represented in this problem.)

The cat's ability to discern a litter substrate as being preferable as a toilet site is a product of the cleanliness of the nest in which it was raised. Over-fastidious litter cleaning by the owner can mean that the cat is not easily able to locate its toilet but, equally, most cats prefer the litter tray to be well maintained.

The relative positions of litter trays and feeding sites can be crucial in helping the pet to select an appropriate site. Feed bowls should be in a different room to the tray. Placing small portions of dried food in areas that have been fouled tends to deter further mistakes. Covering the litter box with a dome to make it more private can help some cats, especially those living in a household with nosy dogs. Thorough cleaning, as with marking problems, should discourage return visits to the inappropriate site.

6. *Indoor marking*: Indoor marking (scratching, spraying and middening) has to be distinguished in each case from house soiling. Activities such as claw sharpening are normal for cats and only become a problem when the favourite furniture is used. Usually the provision of a scratching post in place of the furniture solves the problem. Extreme cases may require declawing. Marking

generally occurs in an attempt to make the perpetrator feel more secure in its lair and therefore it can include scratching, urination and open defaecation (i.e., where no attempt has been made to cover up the faeces, aka 'middening').

The lack of perceived security in the lair is precipitated by things such as the introduction of a cat flap, a young baby, a new spouse or the arrival of new cats in the neighbourhood.

Sites of elimination tend to include areas that either have a higher concentration of challenging odours, such as door mats, or those that smell particularly strongly of the owner, such as chairs and beds, clothes and even the owners themselves.

Females and neutered males may urine spray – in other words, the behaviour is not confined to tomcats. It is just that the behaviour for the females and neutered males requires a higher threshold than for entire toms.

Treatment revolves around making the cat's world more secure, so any form of direct punishment is contraindicated because it simply makes the cat feel more insecure.

a. If the cat has singled out one new person to be the target of marking, then it really helps to get that person to be the only person who feeds the cat.

b. Similarly, encouraging all humans in a household to use the same soaps, shampoos and scents may help to homogenise the group and stop one human being singled out for attention.

c. Boarding up the cat flap works well but has to be done as part of a campaign that includes thorough cleaning with a biological detergent followed by surgical spirit and the placing of dried cat food in favoured sites. This serves to make the marking points less appealing.

d. This campaign can be supported with the use of anxiolytics, tranquilisers ± pheromonotherapy. These drugs should be given only transiently and only in combination with behaviour modification.

7. Aberrations during parturition and lactation: Some breeds, like the Siamese, may become very restless and verge on hysteria. This is not a common occurrence in other breeds (Joshua, 1968).

Some first-time mothers may find the whole new experience overwhelming. If so, the mother should be separated from the litter to prevent malnutrition or injury to the young (Schwartz, 1997).

8. Aggression: This cannot be regarded as abnormal, but which can be a problem for cat owners. There are different types of aggressive behaviour in cats (Hart, 1980a).

a. Intermale fighting: this can be sometimes eliminated by castration. Cats are usually extremely flexible socially, but breakdowns in this ideal occur when kittens have been deprived of social learning opportunities between 2 and 7 weeks of age. Intermale rivalry arises and the intolerance of certain individuals can lead to enormous problems of aggression.

In treatment, these cats can be re-educated by frequent controlled exposure to the new cats coupled with distraction techniques, such as feeding, when socialising. Human support of the higher ranking individual can

serve to demote the other combatants to the extent that they are perceived no longer as a worthy opponent by the alpha cat.

b. Social-territorial aggression: common aggressive behaviour, which occurs if a cat, intrudes into another cat's territory. It is often difficult for an adult cat to accept another cat or kitten into the household. Synthetic facial gland pheromones have been shown to have a pacifying effect on fearful and territorially aggressive cats.

c. Fear-induced aggression: may be shown when a child pulls a cat's tail or ears or may follow a slap meant as punishment. Aggression may just be redirected fright. If made toward another cat, it may initiate prolonged disagreements (Schwartz, 1997). Do not cut off the retreat of an aggressive cat or offer direct challenges, such as staring.

Some types of aggression may be controlled by drugs but others may only be controlled by changing the situation, e.g., an established adult cat directing aggression towards a new cat.

In a multi-cat household the same cat is always the first victim of aggressive outbursts by other cats. If this happens, the cats should be separated as soon as possible after the first attack to prevent further occurrences (Schwartz, 1997).

d. Aggression towards visitors and owners: this can be a result of insufficient socialisation and gentling, causing a display of defence aggression or predatory chasing, for example, of human feet. Or it can be redirected aggression towards humans by cats that have just seen conspecific rivals through a window.

Treatment is for the owner to make time for some structured play with the cat and, perhaps, consider introducing a less threatening cat, such as a kitten of the opposite sex, into the home.

9. Overeating: This is often associated with overfeeding by the owners, especially when they have assumed that vocalisation by the cat is a sign of hunger.

10. Over-attachment: If this is the problem, the cat may follow the owner constantly, be upset in his/her absence and have a tendency to suck skin and clothing.

Treatment for over-attached cats is to keep petting to a short duration and only at the initiation of the owner; in other words, stop rewarding attention-seeking behaviour with petting. Many of these cats quickly learn just how to get attention on demand. Periods of isolation in an appealing room should be increased from a couple of minutes to six hours over a period of two or three months. In other words, a process of habituation.

11. Nervousness, phobias and separation anxiety: These can result from a lack of early exposure to appropriate stimuli during socialisation periods, a traumatic incident, or old age. Cats in this class often appear withdrawn, have a low crouching gait and are reluctant to enter open spaces. They may also show psychogenic vomiting and diarrhoea, and may overgroom themselves or self-mutilate.

If a specific stimulus is responsible for the behaviour, then systematic desensitisation is indicated. Where there is generalised nervousness, drug support is

sometimes helpful. Specifically, over-grooming and self-mutilation have their origins in stress. When a cat comes up against a confusing or frustrating situation, it will often stop whatever it's doing and groom itself. The stress of isolation for instance can send cats into a grooming obsession in the same way that a flea allergy can. Ultimately, the danger is that trauma to the skin

ends up generating endorphins that mediate a form of self-reward to the cat and the cycle tends to perpetuate itself. Treatment must centre on reducing the stressors in the cat's life and, possibly, the use of drug support such as benzodiazepines (valium) or tricyclic antidepressants (amitriptyline).

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