How to...
Train a cat to use a carrier

Preventing behaviour problems

Food puzzles for cats

Where have our pet cats come from?

Special issue: Feline behaviour

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Welcome to our October issue of Feline Focus. This month we are concentrating on behaviour, an area we know nurses and technicians are frequently involved with. To advise on behaviour problems correctly, we must first understand what makes cats behave the way they do. Our first article discusses the origins of domestic cats — there is a little wild cat left in the pet cats in our homes! We are then excited to start a series of articles by Trudi Atkinson on the role of nurses and technicians in the prevention and treatment of problem behaviours. We can prevent many problems by educating owners on normal cat behaviour, and how to ensure their cat’s behavioural needs are met, starting with kittens. Our third article is a must read for everyone who wants to encourage cats to attend the veterinary clinic for treatment. How many times do you hear owners complain about getting their cat into a carrier? Simple training techniques can make this experience easy, and facilitate preventive healthcare via routine veterinary visits. Finally, Dantas and colleagues discuss the physical and emotional benefits of puzzle feeders, an article that prompted me to buy one for my cats straight away!

If you missed our September webinar on harmony in multi-cat homes, please go to www.icatcare.org/nurses to catch up on this recording and many others.

Best wishes,

Sam Taylor, Veterinary Editor

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*Source: Mills 2001. Evaluation of a novel method for delivering a synthetic analogue of feline facial pheromone (Feliway®) to control urine spraying by cats.
Where have our pet cats come from?

The domestic cat, *Felis silvestris catus*, has evolved from the North African/Arabian wildcat (*Felis silvestris lybica*). Domestication began when wildcats started to live in proximity to human settlements. The storage of grain resulted in rodents, and the more bold and friendly wildcats exploited this food source. Tamer wildcats were more likely to be fed and given shelter, and thus have more successful reproduction, leading to cats becoming progressively friendlier to people. *F. s. lybica* is a solitary hunter, fiercely territorial, agile and adaptable. These attributes are retained by modern pet cats. Owners and veterinary professionals should take this into account when dealing with them.

Cats are fascinating creatures and, as veterinary professionals, understanding their behaviour can help us to understand why they respond in certain ways in particular situations. Knowledge of the normal behaviour of cats requires an understanding of their origins in the wild, and how they came to live in our homes today.

**The ancestor of the domestic cat**

The original sole ancestor of the domestic cat is the wildcat *Felis silvestris* which can be divided into the following types:

- European wildcat (*Felis silvestris silvestris*);
- North African/Arabian wildcat (*Felis silvestris lybica*);
- Indian desert cat (*Felis silvestris ornate*);
- South African wildcat (*Felis silvestris cafra*);
- Chinese mountain cat (*Felis silvestris bieti*).

Genetic analyses confirm that the differences between these types of cat are very small and thus they can all be considered subspecies of *F. silvestris*. Our domestic cats (known as *Felis silvestris catus*) are derived from *F. s. lybica* (Figure 1) — the easiest of all the *Felis silvestris* cats to tame. However, it is a solitary, territorial species, which is wary of humans.

![Figure 1: Felis silvestris lybica, the ancestor of our domestic cats](image)
Over a relatively short period of evolutionary time, shorter than the time taken to domesticate wolves, the domestic cat has evolved into a friendly pet, able to live alongside people and other cats. Dogs had the advantage of a brain already well developed for social living because their wild ancestors lived in packs using complex social communication.

**How did wildcats come to live with humans?**

Co-existence of cats and humans is evident from fossil records from early human settlements, although these have been assumed to be wildcats. True domestication (or perhaps more accurately, 'taming') of cats was previously thought to have occurred in Egypt around 3600 years ago. Skulls of cats have been found in burial grounds in Egypt. More recent evidence shows that feline domestication probably occurred about 10,000 years ago in the Middle East. The earliest true record of domestication comes from a cat that was found buried with its owner in a grave in Cyprus, 9500 years ago. As there were no native cats in Cyprus at this time it is assumed this cat was brought there as a pet.

The lifestyle changes of humans over the past 10,000 years led to an increase in rodent populations due to the storage of grain. This food source is thought to have attracted cats that would have predated on the rodents. Bolder cats, more tolerant of humans, would be more likely to enter settlements and live alongside the residents. Female wildcats may have chosen to have their kittens close to humans, where there was additional shelter and/or feeding, providing an opportunity for the kittens to be habituated to humans from a young age.

Humans likely tolerated these bold and friendlier wildcats and, via natural selection, these individuals prospered by hunting rodents around human settlements. Their small size, ability to control rodents and perhaps even an inborn tendency towards tameness, may have facilitated their relationship with humans.

**Are our pet cats still ‘wildcats’ at heart?**

Many modern cats remain perfectly capable of surviving in the wild (Figure 2) and can revert to a wild or ‘feral’ existence. Today’s domestic cats retain a number of characteristics from their ancestors, both physical and behavioural. They can survive on a low water intake by producing concentrated urine (more so than dogs), and tolerate extremes of heat. Their body temperature remains consistent in a 24 h cycle, and they are active day and night.

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**Definitions**

- **domestication**: development of animals genetically distinct from the original wild members of the species by separation from their wild counterparts and control of their environment and reproduction.

- **natural selection**: individuals with characteristics best suited to a certain environment thrive and reproduce, passing on the beneficial genes to descendants.

- **taming**: the reduction of fear of humans in an individual. The offspring of a ‘tamed’ animal will naturally still be fearful of humans.

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**Key point**

Modern pet cats are a result of our ancestors storing grain that attracted rodents and, consequently, wildcats to live close to human settlements — the beginning of domestication.
performing regular hunting excursions. The behaviour of the ancestor of our domestic cats, *Felis lybica*, shows us how close today’s cats remain to their wild relatives. Both males and females are territorial and can be aggressive towards unknown adults of their own species. They are solitary hunters, agile and adaptable. They mark their territory by urine spraying, facial rubbing and scratching. Our pet *Felis catus* retains the desire to express these behaviours and, if unable to do so (because of the way we keep cats in modern times) distress and problem behaviours can occur.

**Conclusions**

Knowledge of where our pet cats came from is important when trying to understand their behaviour. This information can help us improve both the home and veterinary environment, to allow our own little wildcat to express normal behaviour and visit the veterinary clinic without distress.

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**Figure 2:** The ancestors of domestic cats were solitary creatures, explaining why some cats find it hard to live with others. (Courtesy of Elahe Soufiani, iCatCare Photography Competition 2015)

**Key point**

The ancestors of our pet cats preferred to live alone, were agile hunters, nocturnal or crepuscular, and territorial. These attributes are retained by many pet cats today.

**Stress-induced behaviour can be prevented, reduced and even eliminated, by training.**

With the help of this book, you can train your cat to do what is in its own best interests — even when its instincts tell it otherwise.

**About the authors**

John Bradshaw, Foundation Director of the Anthrozoology Institute at the University of Bristol, UK, is author of the international bestseller ‘Cat Sense’.

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Prevention of behaviour problems 1: what advice can be given to kitten owners

Veterinary nurses can help to prevent feline behaviour problems by offering advice and information to owners who have recently acquired a new cat or kitten. Owners can be instructed as to the importance of social referencing during a kitten’s juvenile period and how this may be best achieved. Advice can also be offered on topics such as how and where to feed, how to play, the importance of providing somewhere for the cat or kitten to scratch and house-training. Specific advice should also be offered to breeders as they also play an essential role in breeding for temperament and are largely responsible for providing sufficient early positive experience and socialisation with people.

It is fairly well recognised that veterinary nurses can play an important role in the prevention of canine behaviour problems by providing practical preventive behaviour advice and running practice-based puppy classes or parties. But far less has been publicised as to how nurses can educate to prevent feline behaviour problems.

Feline behaviour problems — the silent majority
It may be argued that there is little need for client education in feline behaviour, because the number of owners that approach the veterinary practice or behaviour professionals for help is relatively small in comparison to the number of dog owners who seek advice. However, the issue may not be that feline behaviour problems are rare, but that cat owners experiencing problems are far less likely to seek professional help. (Possible reasons for this and what can be done about it will be discussed in part 3 of this series of behaviour articles.)

Key point
Problem behaviours may develop due to simple mistakes in husbandry, and a misunderstanding of normal cat behaviour.
There are of course many reasons why behaviour problems develop, but they can often be the result of simple mistakes in husbandry and a lack or misunderstanding of normal behaviour and behavioural needs. Imparting a few simple guidelines and some basic education in feline behaviour can help tremendously in reducing the risk of future unwanted behaviours.

**Social referencing**
Social referencing refers to the widening of a kitten’s experiences during the juvenile period which is roughly the time between the end of the socialisation period at around 9 weeks of age and sexual maturity (around 6 months old). All experiences must be positive and should include as many as possible of the stimuli that the individual is likely to experience in later life:

- **Handling**: during the latter stage of the socialisation period (which starts from around the second week of life and ends around the ninth week) and during the juvenile period, correct, gentle handling by a variety of people may help to increase the kitten’s confidence. Handling should never be forced upon the kitten. It is preferable that the kitten approaches the person. The kitten should be given the opportunity to sniff the person and then be gently stroked before any attempt is made to pick it up. It should be demonstrated to the owner how to hold and stroke the kitten correctly (Figure 1).

- **Tactile experience**: kittens can be introduced to a wide range of different objects of varying shapes, sizes and textures and be allowed to explore these in their own time (Figure 2). Using play and/or food treats close to, or in association with, novel items can help to encourage exploration. Forcing the kitten, eg, by picking it up and placing it on or near the item, or placing the item next to the kitten should be avoided.

- **Sound experience**: purpose-made sound effects available as CDs or downloaded from the internet can be used to increase the kittens’ experiences of various noises and allow them to become accustomed to the varying sounds they are likely to experience later in life. Play these sounds at a very low volume initially, gradually increasing it to avoid causing, rather than preventing, fear.
Feeding

What and when to feed is important advice regarding general health, but how and where to feed can be relevant when discussing behaviour and the prevention of future behaviour problems:

- Feed well away from entrances and exits (including cat flaps) and not within sight of glass doors or windows through which other cats may be seen.
- If there is more than one cat in the household they should be fed in separate areas, preferably separate rooms. It can also be a good idea to provide additional feeding locations by spreading the daily requirement over a number of extra food dishes or in food foraging toys. Cats may appear to have no problem in eating close together, as they will rarely fight directly over food, but being given no other option but to eat in close proximity to other cats can be a major cause of stress, increased competition and antagonism.

House-training

Cats and kittens usually require very little by way of actual ‘litter-training’. Often simply supplying a litter tray in a suitable location with substrate is sufficient. However, problems of inappropriate elimination can easily arise because of simple errors:

- insufficient litter trays: many cats prefer one area to defecate and

Tip

Owners should be discouraged from playing with kittens with their fingers or toes, as teeth and claws grow with the kitten. Play should be with toys (homemade or shop-bought).

Importance of play

- Owners should be made aware that play and environmental enrichment are important for cats throughout their lives, and should not just be limited to kittenhood.
- A variety of safe, shop-bought and homemade toys (Figure 3), including food foraging toys, and even simple things such as cardboard boxes, pieces of string, ‘scrunched up’ paper, etc, can be displayed and the correct way to use these toys demonstrated.
- It can be best to discourage the use of laser or light pens because a chase that does not lead to a tangible item for the cat to catch may cause frustration with resultant increased risk of associated unwanted behaviour.
- Owners should be made aware that play is practice of hunting or fighting skills and therefore involves the use of teeth and claws, which get stronger and more powerful as the kitten grows up. Importantly, emphasis must be placed on the risks of encouraging play with fingers, toes, etc.

Figure 3: Play and environmental enrichment are important for cats throughout their lives and should not just be limited to when they are kittens.
another to urinate. The general rule regarding the number of litter trays to provide for indoor cats is one per cat plus one extra.

- **litter trays too close together:** trays need to be positioned sufficiently far apart for the cat(s) to regard them as separate elimination areas.

- **litter not deep enough:** litter should be at least 5–8 cm (2–3 inches) deep, sufficient to allow the cat to dig into it and bury its waste.

- **litter tray not large enough:** a litter tray should be large enough to accommodate the cat comfortably without any part of the cat, including the tail, touching the sides when attempting to eliminate. Not increasing the size of the tray as the kitten grows up can be a common mistake.

- **‘wrong’ type of litter:** owners of newly acquired cats or kittens are generally best advised to continue with the type of litter the cat or kitten is accustomed to. Otherwise the best type of litter to choose is one that is unscented and comprised of small granules that are easy and comfortable for the cat to walk on and dig into.

- **bad positioning of litter trays:** cats can feel vulnerable when eliminating and will avoid areas where they may feel threatened. Trays should be positioned away from doors or windows through which other cats may be seen, and preferably placed in quiet areas where the cat is less likely to be disturbed or be at risk of attack by another household cat.

- **deodourising litters or other scented products:** these can often be too strong and ‘off-putting’ for the cat’s sensitive sense of smell.

- **covered vs uncovered tray:** there are pros and cons of using covered or uncovered trays and often it can be personal preference on the part of the cat, so the owner may need to experiment to find what their pet prefers.

- **dirty litter tray:** cats can be highly fastidious and a litter tray that is not cleaned sufficiently well or often enough can be a very common reason why a cat may choose to eliminate elsewhere. The general rule is to remove faeces and wet patches as soon as possible after they appear and completely empty and wash out the tray once or twice a week.

**Scratching**

Owners must be made aware that scratching is a normal behaviour and one that cats must be given the opportunity to engage in. If no provision is made there is increased risk that the cat or kitten may
damage the owners’ furniture by scratching (Figure 4).

- Cats may demonstrate an individual preference for using either a vertical or horizontal surface or may scratch equally on both. So it can be best to provide both options.

**Scratch posts**
- A good scratch post will be made of a material that a cat can get its claws into and leave noticeable scratch marks. Sisal rope is usually a good choice.
- The post needs to be heavy enough that it doesn’t move when the cat pulls against it as it scratches.
- Because some cats also stretch when they scratch, the post must be tall enough to allow an adult cat to stretch upwards. Platforms and some toys fitted on top of the post may hinder the cat’s ability to stretch, so are often best avoided.

**Scratch pads**
- Scratch pads can be made of cardboard or sisal rope or carpet on a sturdy base. Some can be completely flat while others have raised curved sections. Cats can have individual preferences so unfortunately trial and error is often the only way to discover what type the cat or kitten prefers. So owners may be best advised to try the cheapest (usually a basic flat cardboard type) first.

**Positioning of scratch pads/posts**
- Location is important. The cat will be less likely to use it if it is incorrectly positioned. Many cats like to have a scratch location near, or within sight, of entrances and exits (this can include internal doors and staircases).
- If the cat is already scratching on an item of furniture or carpet it is often best to position the post or pad as near as possible to the surface that the cat is currently scratching. The post or pad may later be slowly relocated to somewhere more convenient for the owner, but not until the cat is using it regularly.

**Preparing a scratch post or pad**
- Cats will often prefer to scratch a surface that has already been scratched. There are two signs that the cat will ‘look for’; visual scratches and scent.
- The post or pad can be pre-scratched by using the sharp tip of a screw or similar. Use brisk downward movements to mimic the marks left by claws.
- Rubbing the post or pad a few times over an area recently scratched by the cat will also transfer the scent necessary to
make the post or pad more attractive. The other option can be to gently obtain the scent from the cat’s front feet onto a clean dry cloth and then transfer this to the post or pad.

**Transporting**

Fear and dislike of the veterinary practice, the cattery and groomers, etc, may not only be due to the experiences the cat has while at the destination, but can also be due to the stress of travelling. Advice on how this stress may be reduced is a good idea to increase the welfare of the cat. It is also helpful for the cat or kitten owner and the pet professionals who may need to handle an otherwise fractious cat. (See *Training a cat to use a carrier: a four-stage approach* on pages 281–287 of this issue.) In general:

- Reduce or prevent fear of the cat carrier.
  - Do not hide the carrier away in between uses. Leave it out in a prominent position at all times, preferably in an area where the cat generally likes to relax such as somewhere warm or an area that catches the sun.
  - Place comfortable bedding in the carrier, and occasionally throw in a few tasty food treats.
  - When it is necessary to transport the cat, encourage it with a few small tasty food treats, rather than attempting to physically force it into the carrier.
  - It can be even better to train the cat or kitten to go into a carrier ‘on command’ and to also regard the carrier as a place of comfort and safety.

- Covering the carrier with a lightweight towel or small sheet can block the cat’s view of potentially frightening things, both during the journey and on arrival. Occasionally, lift the cover to check that the cat is okay. Do not use anything that is too thick or too heavy that might restrict the air flow.
- In the car ensure that the carrier is well secured so that it does not move around during the journey.
- Drive steadily trying as best you can to avoid sudden breaking or acceleration.
- If the cat is accustomed to music or the radio being played at home, playing the same music or radio stations in the car may help to block out unfamiliar and frightening sounds for the cat.
- Never leave the cat unattended in the car, especially on a warm day.

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**Adding another cat to the household**

Conflict between household cats is one of the most common feline behaviour problems seen by behaviourists. Fights can develop between cats that have lived together for some time, but more commonly occur between a newly acquired cat and one that is already resident.

Cats do have the ability to be social with other cats, but there are limitations to this ability. Cats that have grown up together from early kittenhood, even if they are not related, are more likely to be sociable to one another and to maintain a good relationship. Cats introduced to each other as adults are more likely to regard each other as rivals and as competition for resources.

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**Tip**

Owners should be advised to think carefully before adding another cat to their household, and to seek professional advice if this is something they are seriously considering, or if they have already taken on a new cat and are having problems.
Advice for breeders

Because cats are most sensitive to learning about social relationships before they are likely to go to their new homes,\textsuperscript{5,6} the onus for supplying adequate positive socialisation lies with the breeder, but this is not the only way in which breeders can increase the chances that their kittens will turn out to be suitable and problem-free pets (Figure 5). So offering specific advice for breeders, especially new or potential breeders, is equally as important as the advice offered to owners.

Breeding for good temperament

- There are proven genetic influences on behaviour,\textsuperscript{7} so it is important that breeders choose the cats they intend to breed from carefully. Both stud and breeding queen should be friendly and with generally good temperaments.
- Care should be taken to ensure that the breeding queen is physically and nutritionally healthy, both prior to conception and all through pregnancy. Advise regular health checks before she is mated and during pregnancy.
- If the queen is subjected to excess or chronic stress this can influence the emotional development of the kittens, so it is important to limit stress for the queen during pregnancy.\textsuperscript{8-10}

Early experience during the socialisation period

- Kittens should be given the opportunity to experience and make positive associations with all the stimuli they are likely to encounter in adult life. Therefore, kittens should be raised within the home where they can become accustomed to everyday household sights, sounds and smells.

Handling

- Regular, gentle handling is important, especially at the latter stage of the socialisation period. To avoid causing undue stress to the queen it can be best that up until 3–4 weeks of age the kittens are only handled by people familiar and trusted by the queen. Over 4 weeks of age additional people may be encouraged to handle the kittens.
- From 5–6 weeks of age play can also be an important part of regular interactions between the kittens and people.

Figure 5: Well-socialised kittens make better pets

Key point

Breeders should be highly aware of the importance of the socialisation period, as well as the importance of selecting stud cats not just for appearance, but also for behaviour.
References


Training a cat to use a carrier: a four-stage approach

Many owners would cite difficulty getting a cat into a carrier as a reason not to visit the vet, or a reason that the visit is stressful. Giving owners information on how to train their cat to be comfortable in the carrier will encourage attendance at the clinic, and improve preventive healthcare. Training can be undertaken in several stages. Start by ensuring the carrier does not have negative associations, training the cat to be comfortable near the carrier and slowly encouraging the cat to sit comfortably in the carrier with the door closed.

As a veterinary nurse or technician, you will frequently hear about the problems owners have transporting their cat to the veterinary clinic. Difficulties getting a cat into the cat carrier can result in reluctance to visit the vet, and cause significant distress to the cat. This can mean reduced preventive healthcare, delayed diagnosis of disease, and therefore reduced quality of life. In addition, if an owner is physically forcing the cat into its carrier, there is the potential for the cat to start to view the owner negatively and result in a breakdown of the cat–owner bond.

A cat which is comfortable with travel in its cat carrier will make trips to the vet, or other locations, such as boarding catteries, much easier, and the cat will not arrive already anxious or fearful from the journey. This article discusses the easiest and kindest way to train a cat to voluntarily enter its carrier: this method can be passed on to clients, reducing stress for both cats and their owners. It is much easier to train a cat to accept a carrier that has no previous negative experiences, so ensuring clients get this information as soon as they obtain a new kitten is imperative.

Key point
If a cat has had previous bad experiences with a cat carrier, consider buying a new, comfortable carrier, of adequate size before starting the training, to reduce this negative association (see Figure 1).
there are a number of things that can be done to ensure positive perceptions of the cat carrier are created. If the cat already has a very negative association with the cat carrier, it is worth taking some time to think why this might be.

**Questions to ask yourself**

- **Is the negative association related to the way the cat was put in the carrier?** For example, is it a battle to get the cat in?

  The first step is to stop any behaviour that involves physically forcing the cat into the cat carrier. Therefore, start the training process when there are no scheduled appointments at the vet for the next few weeks.

  If the cat really hates the cat carrier, it might be worth buying a new cat carrier of a different model (Figure 1) and start the training with this new carrier that has less association to negative events attached to it.

- **Do you think problems may be related to the cat carrier itself? Is it too small?** The cat should be able to have enough space in the cat carrier to stand up and turn around. If this is not the case, it would be advisable to buy a larger cat carrier.

  **Does the carrier smell of another cat?** Consider the cats which travel in the same cat carrier at different times. If this is the case and the two cats do not have an amicable relationship, the close proximity to the smell of another cat and the inability to escape from it may cause a cat to feel
anxiety or even frustration. In addition, if other cats also dislike going in the cat carrier, it may be because cats have deposited chemical secretions (pheromones) from the pads of their feet and other parts of the body, which communicate that they were anxious or fearful while in the cat carrier. Such a message will make cats much more wary of the carrier. Therefore, it is a good idea to wash down the cat carrier after use with a warm solution of biological washing powder (approximately 10% washing powder) to remove any of these chemical messages. This is one of the reasons why an easily washable plastic cat carrier is recommended.

• Does more than one cat have to travel in the cat carrier at the same time? Even if cats get along well in the home, forcing them to share a small space, from which they cannot escape, can create tension and hostility between them. Always travel with cats in separate carriers and keep the same carrier for each cat.

• Does the cat only ever go in the cat carrier when it goes to the vet or the boarding cattery? If the cat only goes in the carrier for events it does not enjoy, it will simply learn to associate this with the carrier. Ensuring the cat carrier is accessible in the home at all times, can begin to break down such associations.

• Does the cat dislike travelling? The cat carrier is likely to be associated with travelling. If the cat is not keen on travelling (some cats experience feelings of travel sickness just as we can), such negative associations can generalise to the cat carrier itself.

**Learning to love the cat carrier**

After considering these questions and making the required changes, there are a number of further tips that will help the cat to learn to associate the cat carrier with positive experiences.

- Have the cat carrier out and open (with the door off) in the home environment at all times. If the cat is very nervous of the cat carrier, start with the top as well as the door removed.
- Make the carrier as cosy and comfortable as possible and position in a safe and secure area (Figure 2).
- Place it in a room where the cat

**Tip**

Place the carrier in an area of the house the cat is comfortable in, spray with feline pheromones and add a favourite blanket. Use treats, or catnip to encourage the cat to explore the carrier.
spends time and, ideally, not in the room or place used to put the cat in previously.

• Spray a synthetic feline facial pheromone into the carrier (allowing 15 mins before giving the cat free access to it, to allow any alcohol in the product to evaporate). This help the cat to perceive it as a safe and secure place. An alternative is to rub a soft cloth on the cat’s facial area (only if the cat enjoys being stroked) and rub this cloth on the outer corners, entrance and inside of the cat carrier.

• Place things the cat really values in the cat carrier (eg, favourite food treats, catnip, favourite toys). If the cat shows any interest in the carrier, give a predetermined reward (eg, food treats, fuss or a toy to play with). For a cat that has never had any experience of the cat carrier before, eg, a new kitten, this method may be enough to encourage an explorative foray into the carrier.

Cats which are not worried about the carrier
For an adult cat with indifferent or only slightly aversive previous experience of the carrier, having the carrier out in the home all the time with positive things in it may be enough to build up its courage to explore. Make sure not to push the cat in, close the door and take it out to the car as soon as the cat sniffs it! Let the cat explore and spend time there at its own leisure.

Cats which are anxious/fearful of the carrier
Some cats, particularly those that are already anxious or fearful of the cat carrier, will not go near it. The following steps to train the cat to be comfortable in the cat carrier should be progressed through slowly, only moving onto the next stage once the cat is comfortable.

Figure 3: The cat’s blanket can be moved progressively closer to the cat carrier

Key point
Start by encouraging the cat to show relaxed behaviour on a mat or blanket, then slowly move this closer to the carrier.

Stage 1
Using a plastic cat carrier which has a bottom part and a top, start the training with the top part of the carrier removed. This makes the carrier appear less enclosed and potentially less threatening. Place a blanket that the cat is comfortable with (that the cat already sleeps on, or is fed treats on) near the cat carrier (Figure 3). If the cat is very worried by the cat carrier, start with the placement of the blanket a greater distance away from the cat carrier (but still in the same room). Reward the cat (using the cat’s preferred rewards) for relaxed behaviour on the blanket. The cat will soon learn that it is the relaxed behaviour on the blanket that triggers it getting a reward. By learning this, the cat develops a positive association in
its mind between the blanket and the reward. (See the cat carrier training video 1: https://www.youtube.com/watch?v=mM2BXLJkJhc.)

Stage 2
Gradually, over a number of sessions, move the blanket closer towards the carrier. Never move the blanket while the cat is on it. Allow the cat to choose when to get off the blanket. The cat should now be offering relaxed behaviour on the blanket, so mark this with the word ‘good’ (as shown in the video) and then provide a chosen reward (toy, food treat, fuss) off the blanket. This will allow you to move the blanket while the cat is engaged with its reward.

Remember to go at a pace the cat is comfortable with, tailoring the length of session to the cat’s engagement and ensuring you always end on a positive note.

Over a number of sessions, gradually move the blanket into the cat carrier. Aim to get to the stage where the cat will relax on the blanket in the cat carrier with the top of the cat carrier removed (Figure 4). For nervous cats, you may need to work with the roof of the cat carrier completely out of view and work gradually towards having it laid beside the cat carrier base. Only when this stage has been reached can you attach the roof. Do this when the cat is not in the base of the cat carrier. (See video ‘Cat carrier training part 2: https://www.youtube.com/watch?v=wtRCxysZErO.)

If the cat is not keen to enter into the carrier at this stage with the top on, you may need to go back a few steps taking the blanket out of the carrier. Remember to do this gradually and reward each gradual

Teaching the cat that the word ‘good’ means a reward is on the way
The cats needs to know that the word ‘good’ means a reward is on its way, otherwise the word is meaningless.

- Simply say the word and immediately afterwards give the cat its desired reward and repeat the pairing of ‘good’ and giving a reward several times.

- When you see the cat anticipating the reward after hearing the word ‘good’, you know that it has learnt that the word is predictive of a reward.

- Using the marker word ensures that the cat realises that it is relaxing on the blanket that produces the reward (if the reward is given when off the blanket, the cat will associate that with the reward).

- The marker word allows us to pinpoint or mark the exact behaviour we wish to reward.
How to...

movement towards entering the cat carrier fully. For example, the cat may only offer placing its head in the cat carrier initially. Reward this behaviour and gradually build to head and one paw in the cat carrier to head and two paws in the cat carrier to head, front paws and half of body in the cat carrier, and so forth. The final goal here is to have the cat’s whole body in the cat carrier and the cat showing relaxed behaviour on the blanket in the cat carrier.

At no stage in this process has the cat been touched to get it to enter the cat carrier (unless stroking is used as the reward!).

Stage 3

Once the cat is comfortable and is spending 3–5 mins in the cat carrier (Figure 5) it is time to start teaching it that the door closing is ok. (See video ‘Cat carrier training part 3: https://www.youtube.com/watch?v=OVH31RWfwzg.)

Start off as you have been and once the cat is in the carrier give a reward and then close the door a very small distance. Then open the door again and reward again. Shut the door further and further each time, being sure to open it straight away until you are fully closing it. Open the door right away if the cat moves towards the door at any point — this teaches the cat that it can control the door opening just by moving towards it. The aim is to build the cat’s confidence and give it no reason to panic.

Build this up so that the cat is comfortable being in the carrier for around 3 mins with the door closed (initially unlocked and then moving to locked) before moving to the next stage. However, it is important to ensure the cat can cope with being in the cat carrier in a relaxed manner for the length of time the longest journey is. For example, if the trip to the vet clinic is usually half an hour, see if the cat gets to the stage where it remains in the cat carrier for this length of time of his own accord (door open), building up to similar lengths of time with the door shut. Using this training method, it is very common to find that cats choose to use their cat carriers as nice places to sleep, even selecting the carrier over other available beds.

Figure 5: Once comfortable sitting in the carrier for 3–5 mins the door can be put on and slowly closed, continuing the reward process

Tip

During stage 3 training, build confidence by opening the door immediately the cat approaches the carrier door.
Stage 4
Now you are ready to start training the cat to accept the cat carrier being lifted and moved. This can be difficult for cats that like to keep their paws firmly on the ground, so be sure to work in small, incremental steps towards your final goal of lifting and walking with the cat carrier.

Once the cat is happy with the door closed, start moving the carrier along the floor slowly without lifting it. Remember to reward the cat all the time for staying in the cat carrier. Rewards such as food treats can be placed in through the side or door of the carrier, and soothing words given all the time. If the cat asks to leave the cat carrier at any time by miaowing or pawing the door, then immediately stop any movement, open the door and allow the cat to exit. If this does occur, your steps are probably too big and you need to work on this at a slower pace.

Key point
Cats need to get used to being in the cat carrier in the outside environment, as well as indoors.

Once you are able to move the carrier around, place your hand on the handle and let go straight away. Reward the cat. Repeat this but this time apply a little upwards lift as you would if you were going to pick up the carrier then stop and reward the cat. Progress to being able to lift up the carrier and gently put it back down. Then, walk a few steps with the cat carrier. Progress to going outdoors with the carrier and eventually to placing it in the car. Work in small steps all the time. Make sure both the lifting and putting down of the carrier is slow and steady.

Many carriers become unstable when lifted simply using a small handle and the movement can upset the cat. Where possible, carry the cat carrier with both hands to stabilise it. Using this approach you should be able to move the carrier further and further.

Conclusions
Don’t just save cat carrier training for vet visits, make it part of your regular routine, practising at least once a week. Teach your cat that getting in the cat carrier and being lifted and moved around while in it are pleasant activities. Take the cat to the kitchen in the carrier where there may be a tasty treat or take it to another room where the cat’s favourite toy is ready for a game. If the cat has outside access, use the cat carrier to take the cat to the garden. Spending this time with the cat will not only enhance the relationship, it will make using the carrier less distressing for both of you.

Getting out of the carrier
When you are ready to let your cat out of the carrier, open the door of the carrier calmly and quietly. Try not to make too much of a fuss of the cat on leaving the carrier, as we want all the rewards to be for being in the carrier. In this way, the cat learns that being in the carrier is a great place to be because the best things happen there.

Sarah Ellis’ tips on travelling with cats in the car will appear in a future issue of Feline Focus.
Brand new from ISFM, this guide is designed to help veterinary professionals better understand, prevent and manage stress and distress in cats.

The 160-page guide has been broken down into twelve easily digestible chapters, covering what stress and distress are, why cats can become stressed and/or distressed, and how this impacts on the behaviour and health of the cat. The guide looks at the causes of stress and distress in different environments, including the veterinary clinic, homing centres, at home and in multi-cat households, and how it can be prevented and managed.

This practical guide provides some basic ideas, principles and tips which can be implemented by all veterinary professionals, and will make a huge difference to the cats in your care.

An essential guide to understanding, preventing and managing feline stress to improve the health and wellbeing of the cats in your care.

Available now from: www.icatcare.org/shop
Food puzzles for cats: feeding for physical and emotional wellbeing

Food puzzles were originally created to provide environmental enrichment for captive zoo and laboratory animals. Using food puzzles can increase physical health and combat obesity. They can also help to reduce stress-related behaviours in indoor cats. For effective use, implementing food puzzles requires some planning. This article explains the rationale behind the use of food puzzles, provides strategies for introducing them to cats and tips on troubleshooting challenges for their use.

The domestic cat's behaviour and behavioural needs are very similar to those of their closest wild ancestor, the African wildcat. Current veterinary and cat care guidelines in the USA (eg, American Veterinary Medical Association; Indoor Pet Initiative) encourage keeping cats indoors for safety, health and ecological reasons, but this recommendation, along with the concurrent misperception of cats as low-maintenance pets, means that many cats are housed in suboptimal environments. One significant influence on cats' living conditions is how they are routinely fed.

Most cats are offered food ad libitum from a bowl, are often required to share feeding areas or dishes with other cats and have to expend little to no effort to acquire calories. Cats are, however, natural predators that tend to eat multiple small meals each day in the wild. When able to hunt, cats make several hunting attempts each day, only approximately half of which lead to catching a prey item.

Indoor housing has been associated with increases in the occurrence of obesity, type 2 diabetes mellitus, joint problems and chronic lower urinary tract signs. The risk of...

Key point
Without environmental enrichment, indoor-only cats can develop stress-related behavioural problems.

Two previous articles by Professor Buffington discussed the principles of environmental enrichment: Multimodal environmental modification (MEMO) for prevention and treatment of disease in cats, parts 1 and 2 (Feline Focus 2015; 1[8]: 275–280 and 2015; 1[9]: 311–316).

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Box 1: What are food puzzles?

A food puzzle (Figure 1) is an object that releases food when the animal interacts with it.

**Mobile food puzzles**

These are designed for use with dry food and move when pushed with a paw or nose. Release of food can be made easier or harder by changing the size or number of openings that can dispense food.

**Stationary puzzles**

These are typically larger, with sturdy bases, and holes, cups or channels. Dry food can be placed in the holes and cups, which must be fished out with a paw. Wells may be filled with wet food; the cat must lick food out of these wells, mimicking how cats use their jaw muscles to remove flesh from bone.

Figure 1: Clockwise from upper-left hand corner: homemade mobile, homemade stationary, purchased stationary and purchased mobile food puzzles. Homemade puzzles can be made by cutting holes in household containers such as toilet paper rolls, egg cartons, margarine tubs or water bottles. Ice cube trays can be used for wet food. Place yogurt lids over the individual reservoirs or cups to increase difficulty. (Photographs courtesy of Ingrid Johnson, Leticia Dantas and Mikel Delgado)

behavioural problems such as aggression, house-soiling and overgrooming may increase with confinement. These behaviour problems can lead to a weakening of the human-animal bond, and can result in unwarranted euthanasia of the cat.

Environmental enrichment may have some mitigating effects on these stress-related behaviours. One approach to environmental enrichment is to take advantage of cats’ natural instinct to work for their food through the use of food puzzles (Box 1).

Benefits of using food puzzles

Implementing enrichment by providing foraging opportunities and food puzzles offers several benefits to captive large cats, including reducing stereotypies such as pacing, improving body condition and increasing exploratory behaviour.

Current guidelines for the care and welfare of domestic cats suggest that they be allowed to express the predatory sequence to the extent possible, including active acquisition of food. Provision of food puzzles has been shown to increase activity and reduce problematic behaviour in dogs. In cats, various forms of enrichment (such as play, perches, play towers and novel toys) reduce signs of stress. Other benefits can include weight loss, decreased aggression towards humans and other cats, reduced anxiety and fear, cessation of attention-seeking behaviours and resolution of litterbox avoidance.
### Table 1: Case examples where implementation of food puzzles has helped address health or behavioural concerns

<table>
<thead>
<tr>
<th>Case</th>
<th>Presenting concern</th>
<th>Modifications implemented</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two male neutered DSH cats, 11 and 6 years old</td>
<td>Obesity</td>
<td>Rolling and static food puzzles (purchased)</td>
<td>Older cat lost 6.4% of body weight in 3.5 months, and increased mobility. Younger cat lost 11% of body weight in 12 months</td>
</tr>
<tr>
<td>Two DSH cats, 7 years and 1 year old</td>
<td>Younger cat trying to play roughly with older cat</td>
<td>Rolling and static food puzzles (purchased) plus a general enrichment plan and clicker training</td>
<td>Cats were able to play with food puzzles simultaneously; older cat preferred static puzzles and younger cat preferred rolling puzzles. The alterations between cats decreased significantly</td>
</tr>
<tr>
<td>British Shorthair, male neutered, 3 years old</td>
<td>Frustration-based aggression towards owner (biting with no warning when anticipating meals, and when attention was not given)</td>
<td>Rolling (purchased) and static (homemade)</td>
<td>Use of puzzles immediately resolved the situations where the cat experienced frustration. The aggressive behaviour resolved within 6 months</td>
</tr>
<tr>
<td>DSH, male neutered, 9 years old</td>
<td>Noise phobia (panic reactions to several types of sudden or loud noise), sometimes redirecting aggression to other cats in the multi-cat household</td>
<td>Rolling and static food puzzles (purchased)</td>
<td>The redirected aggression resolved and signs of noise phobia were significantly reduced</td>
</tr>
<tr>
<td>DSH, spayed female, 6 months old</td>
<td>Urination outside the litter box and urinating in the bathtub</td>
<td>Rolling puzzles (purchased), one for use in the bathtub. Litter box adjustments were made to increase compliance</td>
<td>The cat took readily to playing with the food puzzle in the bathtub and stopped urinating outside the litterboxes</td>
</tr>
<tr>
<td>DLH, spayed female, 9 years old</td>
<td>Signs of depression when left by main caregiver and agitation prior to their departure. Diagnosed with separation anxiety syndrome</td>
<td>Rolling and static (homemade/purchased). A comprehensive enrichment plan was formulated including various vertical perches and hiding areas</td>
<td>Signs of depression while the primary caregiver was away, and of hyperattachment and anxiety responses to owner’s departure cues decreased in frequency with gradual improvement during 6 months. Within 1 year, the client ranked the cat’s improvement as excellent (signs were mild or not seen)</td>
</tr>
</tbody>
</table>

*DSH = domestic shorthair; DLH = domestic longhair*
(see examples in Table 1). Furthermore, implementing food puzzles provides few risks of decreasing the welfare of cats. In one study, 85% of cats (23/27) engaged with a food puzzle without increases in aggression between group-housed cats in a shelter, suggesting few problems with implementing food puzzles in multi-cat environments.

Although problem-solving to acquire food may initially frustrate some animals, presenting animals with some level of challenge that is appropriate to their natural ecology and matched to their skill level is likely to provide cognitive, physical and behavioural benefits in otherwise-enriched surroundings.

Implementing food puzzles

Successfully implementing food puzzles requires some planning (see Box 2). Clients should be prepared to try a few different types of food puzzles. Some cats prefer mobile puzzles that can be pushed or rolled, while others are more adept at stationary puzzles; some cats are more likely to use their paws, others to push toys with their noses.

Implementing food puzzles offers enrichment beyond just as a means of providing food. The end goal is to have several different types of puzzles available for cats (as is recommended with other toys). The most important key to success is for clients to introduce puzzles to the cats correctly (see Box 2). This means setting the difficulty level to meet the abilities of the cat, and by increasing the cat’s motivation to interact with the puzzle.

Initially, obtaining food from the puzzle needs to be as easy as obtaining food from the food bowl. The puzzle should be filled as much as possible, and should have several,

**Box 2: Helping clients choose a starter puzzle**

This checklist can be used to help clients choose the starter puzzle that is most likely to work with their cat. Ultimately, the goal is for clients to try several types of puzzle with their cats.

- **Does the cat eat wet and dry food?** Wet food is best to use with stationary puzzles. Dry food can easily be used with stationary or mobile puzzles.
- **Is the owner okay with food around the house?** Mobile puzzles may lead to more food scatter.
- **Is the owner concerned about night-time noise/activity?** Stationary puzzles and puzzles made of softer plastics make less noise.
- **How does the cat typically interact with toys — with its paws or nose?** If the cat typically interacts with toys using its paws, it is likely do well with both stationary or mobile puzzles. Cats that primarily use their noses do best with mobile puzzles at first.
- **Does the owner have financial constraints?** If yes, recommend homemade puzzles.
- **Does the owner have time constraints?** If yes, recommend store-bought puzzles.

When introducing food puzzles, clients should:

- continue to offer some food in the cat’s food bowl;
- adjust the food delivery rate of the puzzle so that obtaining food is easy until the cat learns how to use the device;
- monitor the cat to ensure that the experience is stimulating and positive;
- be encouraged to convey feedback to practice staff on the cat’s progress;
- gradually increase the amount of food provided via the food puzzle once the cat is using the food puzzle successfully and no signs of stress or anxiety are observed.
large holes to allow food to fall out easily. The puzzle should roll with little manipulation. For stationary puzzles, cups or reservoirs should be overflowing (Figure 2).

As cats may initially be resistant to working for food, particularly if they have a history of not having to do so, the regular food dish may need to be removed when introducing food puzzles. Because some cats may view their food container as a ‘safety signal’, or may be stressed by changes in their environment, some cats prefer having the puzzle initially introduced as a choice next to the usual feeding container at the time of feeding, and containing the cat’s usual food. Some cats, particularly those that tend to be nervous, may prefer the food puzzle to be placed in a quiet area where they can explore it undisturbed.

The food puzzle should be introduced when the cat is likely to be hungry. Motivation may be increased at first by using a novel food type in the puzzle, such as treats or a dental diet. As cats become more adept at using the puzzle, the food can be changed to the regular diet, or a mix of regular dry food and treats.

Troubleshooting potential challenges and solutions
Some clients (and cats) may be reluctant to accept the introduction of food puzzles. Given time, most cats can adjust to food puzzles.

Problem solving
- **The client does not think the cat will use food puzzles:** senior cats, kittens, three-legged cats, blind cats and cats with other disabilities, such as partial paralysis, have all been observed to use a food puzzle of some type. Reminding the client of the cat’s natural lifestyle as a hunter that works for food may be helpful. Demonstrating how puzzles work will help clients get started.
- **The owner will not make or purchase food puzzles:** make purchase easy by selling them at the practice, referring the owner to local suppliers or directing them to online instructions for creating homemade food puzzles; eg, out of plastic water bottles.
- **The owner does not want to prepare food puzzles daily:** if the client is willing, they can acquire several food puzzles to rotate. All dry food puzzles can be prepared once a week and stored in airtight storage bins.
- **The owner is concerned about**

For dry food puzzles, the client should place food on the floor next to and around the puzzle and allow the cat to eat around the puzzle. The cat may inadvertently move the puzzle while eating, which will help it to make the association between moving the puzzle and receiving food. The owner may even gently roll or nudge the puzzle at first to maintain the cat’s interest. Eventually, regular food dishes can be removed and the cat can receive all of its daily food from puzzles.
**Key point**

All cats should be monitored closely at first when introducing food puzzles, as missing several meals could be dangerous to vulnerable cats, particularly those that are overweight or obese. Until such cats have adapted to the use of food puzzles, they can be offered a portion of their daily food in a bowl. Alternatively, feed wet food from a dish, and dry food exclusively from puzzles.

One type of puzzle is more popular, then the owner should provide multiple puzzles of that type. This prevents cats from having to compete over food resources, and from being forced to eat in the same area, a behaviour that is unnatural to solitary hunters. Some cats are, however, willing to use a food puzzle together (see Figure 3).²⁶

- **Presence of dogs in the home:** puzzles can be used in restricted areas, or baby gates can be used to keep dogs out of areas where the cats’ food puzzles are kept. The baby gates should be placed at a height where the cat can either jump over or crawl under, but the dog cannot. Dogs also can be taught a ‘leave it’ verbal cue, and be provided with their own foraging toys in a separate area of the house or, if possible, outdoors.

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**Behaviour**

**noise/night-time activity:** stationary puzzles can be used at night, or mobile food puzzles can be confined to areas away from the bedroom.

- **The owner is resistant to having food scattered around the home:** the cat will likely eat most of the food dispensed by the puzzle. However, food puzzles can be used in select rooms (e.g., bathroom, kitchen), or in more restricted areas such as bathtubs or in the lids of large storage totes. The downside of restricting the area the puzzle is used in is that it makes food easier to obtain and reduces the cat’s movement and activity. Bathtubs and containers may provide other challenges for any cat with a mobility issue (such as older, arthritic cats).

- **The owner has tried a food puzzle and the cat would not use it:** placing handfuls of dry food in locations frequented by the cat (window sills, beds) allows the cat the chance to discover food in novel places. These cats generally can transition from this to static puzzles located in these areas.

- **Multiple cats in the home:** all cats in the home can be acclimatised to food puzzles. Because cats may have individual preferences, several types of food puzzles can be distributed throughout the home, and each cat should be provided with their own puzzle. If
Box 2: Maintaining the cat's interest in the food puzzles

Adjusting the difficulty to the ability of the cat is important. Unchallenging tasks may lead to boredom or apathy. When the cat becomes competent with a particular food puzzle, clients can maintain their cat’s interest by:

- trying new types of food puzzle (including different designs or materials) or changing the location the puzzle is used in;
- increasing the difficulty of the puzzle: owners can do this by changing the number and/or size of the holes, or by using objects that are opaque and give fewer visual cues. They also can adjust how mobile the puzzle is by using weighted puzzles, cubes or objects that have textured sides;
- changing the substrate the puzzle is offered on (eg, carpet instead of hard flooring) can increase the challenge;
- placing a small puzzle inside a larger puzzle (see Figure 4);
- placing ‘dummy’ objects inside the puzzle such as toy balls or mice that slow the release of food;
- using piñata-style puzzles that dangle or hang and require the cats to reach up to manipulate them. If you are using hanging feeders, make sure that there is no risk of cats getting their claws caught or other dangers. They should only be used under supervision.

• The cat appears frustrated by the food puzzle: frustration can occur in animals when a previously obtainable resource changes or becomes inaccessible, and this may lead to development of fearful or aggressive behaviours in some animals, particularly when a problem is insoluble. We have not encountered this in cats, because difficulty was staged appropriately. We recognise that frustration is possible, particularly in unenriched environments; we, therefore, recommend that food puzzles be introduced as part of a multimodal enrichment plan, and that our implementation recommendations should be followed carefully.

Conclusions

Food puzzles enable cat owners to provide mental stimulation and exercise, and increase the activity of their pet cats, while taking advantage of the domestic cat’s natural inclination to work (hunt) for their food. Food puzzles are easy to implement, and there are few risks associated with their use. In fact, there are many health and behavioural benefits from implementing food puzzles.
References