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Chapter 10

Animal handling, restraint and transport

Trudi Atkinson, Jane Devaney and Simon Girling

Learning objectives

After studying this chapter, students should be able to:

- Describe how to handle and restrain dogs, cats, horses and exotic pets correctly for examination, transportation and treatment
- Understand basic animal 'body language', including signals indicating fear and potential aggression
- Explain how to minimize fear and stress in veterinary patients during approach, handling and restraint
- Understand the techniques used when handling aggressive or potentially aggressive animals, and the use of any equipment that may be required
- Apply the principles of handling and restraint to use in everyday veterinary practice



Introduction

A frequent task for the veterinary nurse in practice is the handling and restraint of animals requiring treatment or examination. How an animal is handled can greatly affect the ease and efficiency with which procedures are carried out. Inefficient or inappropriate handling can subject the patient to unnecessary stress and discomfort, which is not only damaging to patient welfare but may also result in the development of, or an increase in, defensive aggression towards veterinary staff. Proficiency in handling and control is one of the most essential and valuable skills for a veterinary nurse to acquire.

The aims of the nurse when restraining an animal should be as follows:

- To enable an examination or procedure, such as the application of dressings or the administration of medication, to be carried out as efficiently as possible
- To avoid injury or further injury to the patient. For example, if sharp instruments such as scissors are used to cut the animal's hair or a scalpel blade is used to take a

skin scrape for examination, injury may result if the animal moves excessively or unexpectedly. Likewise, excessive or sudden movement may result in further injury while attempts are made to examine or treat a fracture or open wound

- To prevent the animal injuring handlers, veterinary staff or other persons
- To achieve the above without causing additional or unnecessary pain or distress to the animal.

In order to handle dogs, cats, horses and exotic pets successfully it is important first to understand a little about how these species behave and are likely to respond to attempts to handle and restrain them.

Canine and feline communication

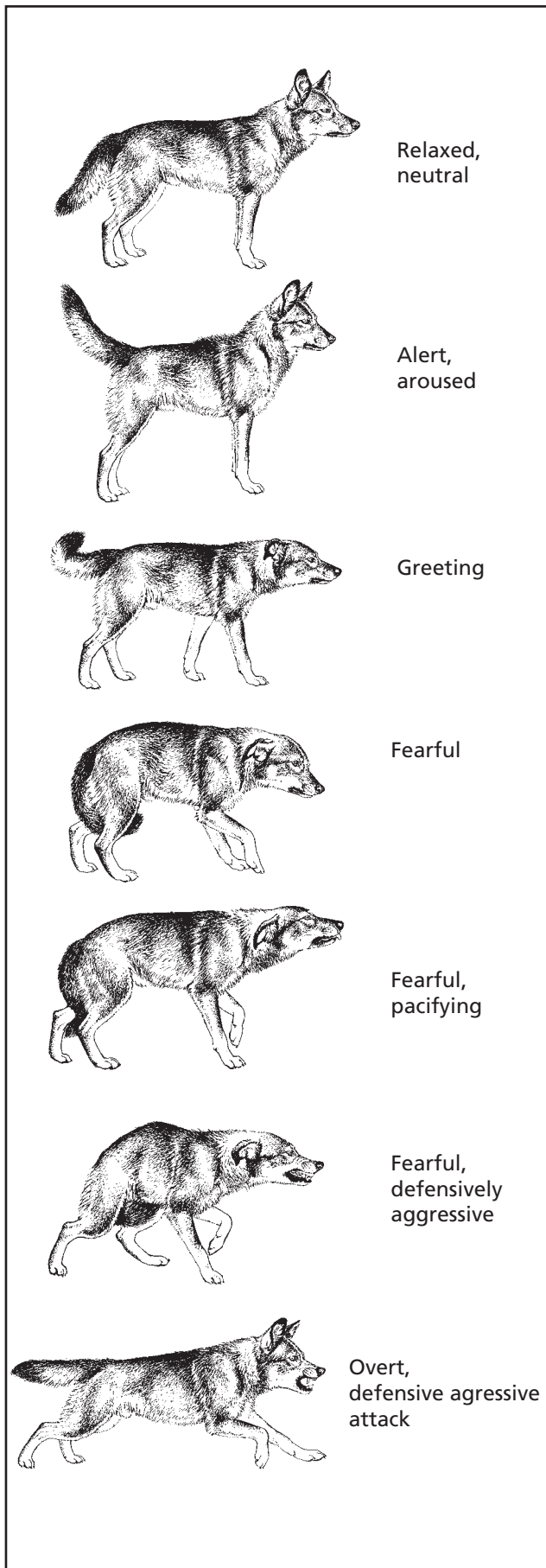
Pain and fear may cause an animal to behave very differently in the veterinary surgery from how it might do under other circumstances. An elementary knowledge of canine and feline communication can help the veterinary nurse assess the possible reactions of an individual animal in its current situation and adapt the means of handling and restraint accordingly.

Canine 'body language' and facial expressions

Figure 10.1 illustrates the typical range of canine body postures and facial expressions (changes in body posture will also occur depending on the dog's current activity).

Tail wagging

A wagging tail can have several meanings, including a willingness to interact (possibly aggressively) by an assertive dog, or a sign of appeasement by a nervous and potentially defensively aggressive dog. The veterinary nurse should always consider other aspects of the dog's body language and never assume that a dog with a wagging tail is friendly and will not bite.



10.1 Canine body language and facial expressions. (Illustrations by Priscilla Barrett; redrawn after Fox and Bekoff, 1975)

Dominance, aggression and fear

'Dominance' is a commonly misunderstood concept. It is purely the ability of an individual at a given point in time to gain or maintain preferential access to a desired resource. *It is incorrect and potentially damaging to equate 'dominance' with aggression or other undesirable behaviour.* Fear is the underlying cause of almost all episodes of aggression, especially in a veterinary situation.

A fearful dog may appear confident and assertive if it has previously had the opportunity to learn that aggression can be effective in making a potential threat 'back off' or keep its distance, even if only momentarily. It is important to realize that attempts to reprimand a fearful animal will only result in an increase in fear and consequently an increase in defensive aggression (see also Chapter 11).

Feline communication

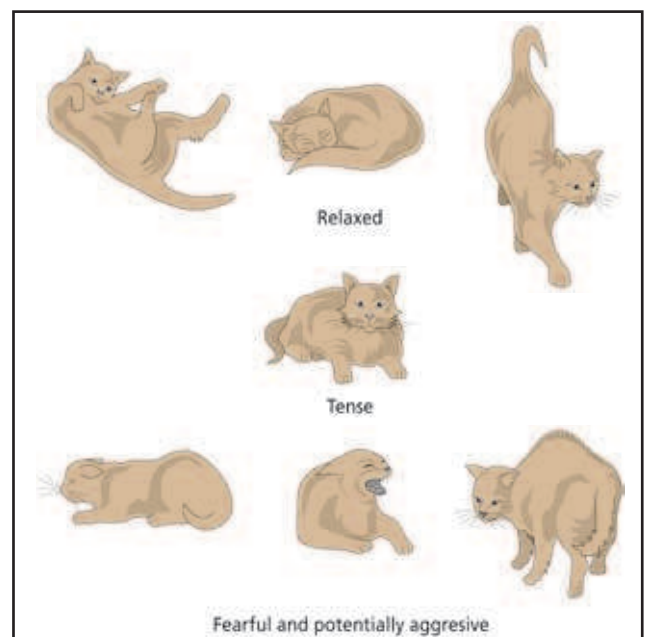
Figure 10.2 shows the typical body language of a cat.

Relaxed

- **Body:** If resting, cat may be on its back with belly exposed, or curled up. Feet may not be in contact with the ground.
- **Tail:** Extended or loosely wrapped if cat is resting. If standing or if in motion, tail may be held down in 'U' shape away from body, or upright, sometimes with curl at the end as friendly greeting.
- **Ears:** Normal 'relaxed'.
- **Eyes:** May be half closed if cat is relaxed; pupil size dependent on available light. A 'slow eye blink' may be directed towards other animals, including people, as a signal of 'non-confrontation'.
- **Vocalization:** May purr while relaxed, or chirrup or meow as friendly greeting.

Tense

- **Body:** May explore area looking for ways of escape or rest in 'ready' position with feet in contact with the ground so cat can move quickly if necessary.



10.2 Feline communication.

- *Tail*: Usually wrapped around body.
- *Ears*: Slightly flattened sideways.
- *Eyes*: Open, pupils dilated.

Fearful

- *Body*: May be held low and away from source of fear with all four feet on the ground, or may attempt to hide.
- *Tail*: Very tight to body.
- *Ears*: Flattened sideways.
- *Eyes*: Wide, with dilated pupils.

Fearful/defensively aggressive

- *Body*: Flattened and backed away from source of fear. If approached, may 'lash out' with front feet, but with body held back.
- *Tail*: Tightly wrapped or 'lashing'.
- *Ears*: Fear and submission signalled by holding ears down and to the side; however, to protect them from injury, ears are held back and down if an aggressive encounter becomes more likely.
- *Eyes*: Wide, pupils fully dilated, and focused on the source of fear.
- *Vocalization*: May growl, hiss or spit.

A cat confronted by a sudden, unexpected danger, such as an unknown or unfriendly dog, may arch its back and fluff out the hairs along its back and tail in an attempt to appear much larger than it really is.

Purring

Cats often purr when relaxed or as a way of soliciting food or attention, but they may also purr when in extreme pain or distress. This may be one way that the cat tries to reduce its level of stress, in the same way that people may whistle or hum if anxious or frightened.

Initial approach and handling of dogs and cats

Handling with the owner present

When handling any species of animal in front of its owner the veterinary nurse should always remember that how the owner witnesses their pet being handled will reflect upon the type and standard of care that they expect from the veterinary practice in general; if the pet is handled roughly or inefficiently they may choose to take their pet and their custom elsewhere. The way in which the animal is handled whilst with the owner may also affect the way that the pet behaves; this is especially the case for dogs.

It may be tempting to ask an owner to help with handling or restraining their pet, particularly if it is nervous; however, practice staff should be aware of the possibility of litigation should an owner be injured, even if the owner volunteered their services. Owners might usefully administer treats or distractions to their pet to ease examinations, etc. but

generally should be dissuaded from putting themselves in any position of potential risk. A second member of staff should be asked to help if two people are needed to restrain and examine the pet. For more information on staff and client safety see Chapter 2.

Some owners may unintentionally reinforce their pet's fear and aggression, and if an animal is difficult to handle it may be easier to deal with away from the owner. When separating dog and owner it is often more successful to ask the owner to leave the room first and then lead the dog away.

Handling dogs

It is helpful to spend a little time 'chatting' with the owner before attempting to handle or approach a dog. This time can be spent watching the dog and making a general assessment of its temperament. The dog will take cues from its owner as to whether or not something or someone is a potential threat. A minute or so talking with the owner in a 'friendly' manner can often help to convey the message to the dog that you are not a threat.

A dog may, however, still regard you as a threat, either due to a previous negative experience in a veterinary context or because of a generalized fear of strangers, and may react in a defensive and aggressive manner, not only if approached directly but also if an approach is made towards the owner. Therefore, until you are certain of the pet's temperament and its perception of you as 'friend or foe', it is advisable not to attempt to shake the owner by the hand or perform other similar actions.

- Whenever possible, a dog should be encouraged to approach the vet or nurse, rather than the vet or nurse directly approaching the dog.
- Cornering a dog, leaning over it or prolonged direct eye contact, all of which the dog may consider threatening, should be avoided.
- Crouching down to the dog's level can help with nervous individuals, but not so close that your face could be within 'biting' distance.
- **Grabbing a dog by the collar or scruff should be avoided, as this could frighten the dog and cause it to turn and bite.**

Nervous animals that are normally obedient may be reassured by giving them a few easy commands to help them relax, especially if the owner has previously associated these responses with rewards. However, veterinary staff must also be aware that if a dog has been subjected to punitive training methods, the use of commands could have the opposite effect of increasing fear and associative defensive behaviour.

Occasionally, dogs are reluctant to leave the safety of a hospital kennel and may become defensively aggressive if confronted or if attempts are made to enter the kennel in order to remove them. If a lightweight lead is left on the dog, the end can be extracted using a broom handle or cat catcher, allowing the handler to take hold of the lead safely without needing to confront the dog. In most instances, once the handler has hold of the lead the dog will leave the kennel and walk willingly with the handler.

WARNING

To avoid injury if leaving a lead on a dog in a kennelled situation, the lead must **never** be attached to a choke chain or slip lead and the dog must be regularly supervised.

Handling cats

Examination or procedures should be carried out on cats as soon as possible. Cats often have a limited 'tolerance period', i.e. they will put up with so much for so long and then suddenly decide that they have had enough and try to escape or become defensively aggressive. Cats often feel very vulnerable in hospital kennels. Providing a box or similar in which they can hide (Figure 10.3) can help a cat feel more secure and therefore easier to approach and handle.

Extracting a cat from a carrier

Top-opening carriers

1. Lift the lid slowly. Most cats will prefer to stay in the carrier but some may try to jump out as soon as the lid is lifted, so be prepared.
2. Stroke the cat to settle it and assess its temperament.
3. Make sure the cat is well supported underneath (see Lifting and carrying) and lift it out and on to the examination table.

Front-opening carriers

1. Open the front and try to encourage the cat out without putting a hand inside the carrier, which the cat may find threatening, making it less willing to leave the safety of the carrier.
2. If the carrier can be separated into two halves, remove the top half and lift the cat out as you would with a top-opening carrier. Some front-opening carriers have a tray in the base in which the cat sits. If so, this can be gently pulled out, bringing the cat out with it.
3. If none of the above is possible, gently tilt the carrier, which may help to encourage the cat out.

A cat should only be forcibly extracted from its carrier as a last resort; if this is necessary try to do so gently and be aware that the cat may become defensive. **Do not pull the cat out by its scruff unless it is absolutely necessary and all other methods have been tried.** Doing so can be frightening and potentially painful for the cat, thereby increasing the likelihood that the cat may become progressively more difficult to handle.

Once the cat is out, the carrier should be placed on the ground or otherwise out of the cat's sight. If the cat can see the carrier it may repeatedly try to get back in and may become fractious when prevented from doing so.



10.3 Providing a place to hide can make a cat feel more secure.

Moving, transporting and lifting dogs and cats

Dogs must always be on a lead attached to a well fitting collar if they are to be walked from one area of the surgery to another.

- Always check that the collar is not too tight, or so loose that the dog could slip out of it.
- For added security, use a lightweight slip lead as well.

If cats or other small animals are to be transported from one area to another, they must be securely contained in an appropriate carrier.

Lifting and carrying

Handlers should be aware of any possible medical conditions or injuries that could be causing an animal pain or discomfort before attempting to lift or carry it. Points of pain should be kept away from the handler's body as the animal is carried, to reduce the risk of causing further discomfort.

It is important to ensure that the animal is aware of the handler's approach and intent before an attempt to lift it is made.

- Small to medium-sized dogs may be lifted by one person (Figure 10.4). Assistance may be required to carry drips or open doors, etc.
- Large, heavy (>20 kg) or injured dogs should be lifted and carried by two people of similar height (Figure 10.5).
- Large, immobile or severely injured dogs are best carried by two or more people in a blanket (Figure 10.6) or on a stretcher (Figure 10.7).
- Cats should be tucked in under the arm with the forearm supporting the underneath of the cat and with the hand gently holding its front legs (Figure 10.8). The other hand can be used to stroke the cat over the head and neck, ready to take hold of its scruff if necessary.

Always follow the health and safety guidelines when lifting (see Chapter 2):

- Keep the back straight, legs slightly apart and bend at the knees
- Always get assistance before attempting to lift a heavy or awkward weight
- Keep the load close to the body.



10.4

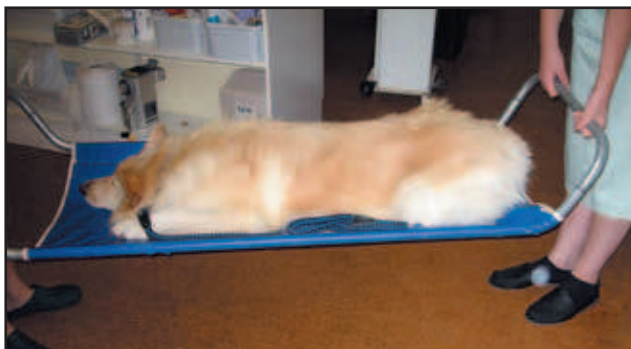
Lifting a small dog. (Courtesy of E Mullineaux)



10.5 Lifting a large dog requires two people. (Courtesy of J Niehoegen)



10.6 Lifting a dog with a blanket. (Courtesy of J Niehoegen)



10.7 Carrying a dog on a stretcher. (Courtesy of E Mullineaux)



10.8 Lifting a cat.

Transport of anaesthetized or unconscious animals

Anaesthetized or unconscious animals should be transported on a wheeled trolley, or similar, and monitored at all times. To maintain the animal's airway the neck should be pulled slightly forward and the tongue extended. Placing the tongue under the patient's lower jaw will prevent the tongue falling back into the mouth and blocking the airway if the animal is not intubated.

International transport of small animals: the Pet Travel Scheme

The Pet Travel Scheme (PETS) relates to the movement of pets (dogs, cats and ferrets) into the UK. While allowing ease of movement without quarantine, there are control measures (vaccination) to prevent rabies from entering the UK. Animals travelling from 'unlisted' countries may also travel but require more stringent controls, including a 4-month waiting period and blood tests after rabies vaccination (see Chapter 5 for details). More recently, the European Parliament and Council have advised that numbers of dogs, cats and ferrets entering from one EU member state into another will be limited to five per person. This limit is applicable to all pets entering the UK and also those leaving the UK for EU destinations. A limit of five pets is already enforced for entries of animals from listed non-EU countries.

A Pet Passport may be obtained from a veterinary surgeon; in the UK this is a local veterinary inspector for Defra.

Export and import licences are required for the transport of other mammalian species and for birds, as well as for dogs, cats and ferrets to or from countries outside the Pet Travel Scheme.

For further details and current information see the Defra website.

Restraint of dogs and cats for examination or treatment

Restraint of pet animals should be firm but gentle, using no more than the minimum amount of restraint necessary. Care must be taken not to cause undue pain or discomfort by applying any more pressure than is required. It may be necessary to adjust the firmness of your hold momentarily, depending on the animal's reactions to the procedure being performed.

The means of restraint used is dependent on both the procedure to be performed and the reactions of the individual animal.

Restraint of dogs

Figure 10.9 shows two methods of steadying a dog's head. The rolled-up towel method is particularly useful with small brachycephalic breeds and can be used to prevent a dog from turning round to bite when it is not possible to use a muzzle.

Figure 10.10 shows a dog being held for cephalic venepuncture. It is often useful to have an additional person available to steady the back end of the dog if it starts to struggle.



10.9 Restraining a dog's head. **(a)** The hands are placed either side of the neck and the head is gently pushed forwards with the fingers. **(b)** A rolled-up towel is held firmly but gently around the dog's neck. (Courtesy of E Mullineaux)



10.10 Holding a dog for cephalic venepuncture.

Figure 10.11 shows a dog being restrained on its side. It may be possible to manoeuvre a dog into this position by first getting the dog to lie down, on command if possible, or by drawing the dog's legs forward whilst it is in a sitting position and then gently rolling the dog over using the forearm to push the dog's head down whilst also holding on to the dog's legs. If the position cannot be achieved by the above method, the dog's legs that are closest to the handler are grasped and pulled away, causing the dog to fall towards the handler. The dog is then gently lowered down against the handler's chest and on to the surface. However, it is necessary to be aware that this manoeuvre and being held in this position can be frightening and may cause the dog to panic and attempt to bite. Gentle reassurance is essential and muzzling the dog beforehand may be advisable.



10.11 Restraining a dog on its side. (Courtesy of J Niehoegen)

Restraint of cats

Figure 10.12 shows general restraint for examination or treatment of the head area. The cat's body should be held close to the handler to prevent the cat from backing away. A firm but gentle hold around the front legs prevents the cat using its front claws.

Figure 10.13 shows raising of the cephalic vein or restraint for examination or treatment of the foreleg. One hand is used to steady the head the other to raise the vein or present the forelimb to the other person.

Figure 10.14 shows two methods of restraint for jugular venepuncture. In Figure 10.14a, one hand is used to restrain the forelimbs and the second to raise the cat's chin in order to present the jugular area to the person taking the blood sample. The sampler raises the vein. In Figure 10.14b one hand is used to hold the forelimbs and the other to raise the vein.

It may occasionally be necessary to hold a cat by the scruff of the neck if firmer restraint is required. However, this should be considered as a last resort, as being held by the scruff can be frightening and potentially painful and many otherwise calm and tolerant cats can become fractious and difficult to handle as soon as attempts are made to handle them by the scruff.

Distraction

Gentle distractions can often help to calm an animal and allow procedures to be carried out more efficiently.

- Talking to the animal in a calm and friendly manner, especially if the animal's name is used, can often help to distract and calm a patient.
- Fingers can be used to gently stroke, scratch or massage the animal.
- A short whistle can often 'still' a struggling dog, allowing a few moments to get a needle into a vein, take a radiograph or perform any other procedure that requires the animal to be still and distracted for a second or two.



10.12 Restraint of a cat to allow treatment or examination of the head.



10.13 Raising a cat's cephalic vein or restraint for examination of foreleg.



(a)



(b)

10.14 Alternative methods of holding a cat for jugular venepuncture. (a, Courtesy of D Mactaggart; b, Courtesy of E Mullineaux)

Handling difficult or aggressive dogs and cats

Many animals are scared by the veterinary clinic and what happens there. It is a strange place where potentially unpleasant things can happen. Good sensitive handling will obviously help to minimize this problem. The use of dog and cat pheromone diffusers and sprays in the clinic may also help to reduce an animal's anxiety. Remember that a frightened animal may use aggression as a defence. Any unnecessary actions that may increase an animal's fear or cause it to be fearful should therefore be avoided.

Dogs

Raising of the paw, lip-smacking, yawning and looking away are all signs of possible stress and anxiety. The handler should look for these signs and intervene before the animal shows more overt signs. Giving the animal something to do, which it knows how to do and for which it is normally rewarded (such as giving a 'sit' command), can be a good way of switching the animal into a more positive mood. However, it is important that such actions are taken before the animal gets too agitated.

Growling

If a dog growls:

- **Do not** attempt to punish the dog: A confrontation will only teach the dog that it has good reason to be defensive.
- **Do not** attempt to comfort or reassure the dog as this may be misinterpreted by the dog and so increase its fear and defensive behaviour.

Instead:

- **Do** muzzle the dog: A growl may not cause you to back off but a set of sharp teeth heading in your direction will. If this happens the dog will learn that direct aggression is effective even if a warning growl is not. Dogs that have already learnt this can be some of the most dangerous and unpredictable to handle.
- **Do** try to appear unconcerned by the growl: Backing away or appearing fearful or angry may reinforce the growling and potential aggression.
- **Do** try to understand why the dog is growling. Is the dog in pain? Is it the way in which it is being handled? Is it the procedure that is being carried out? Unless the procedure is almost finished, or is one that will only take a few seconds, it is best to stop and then continue once the dog is muzzled.

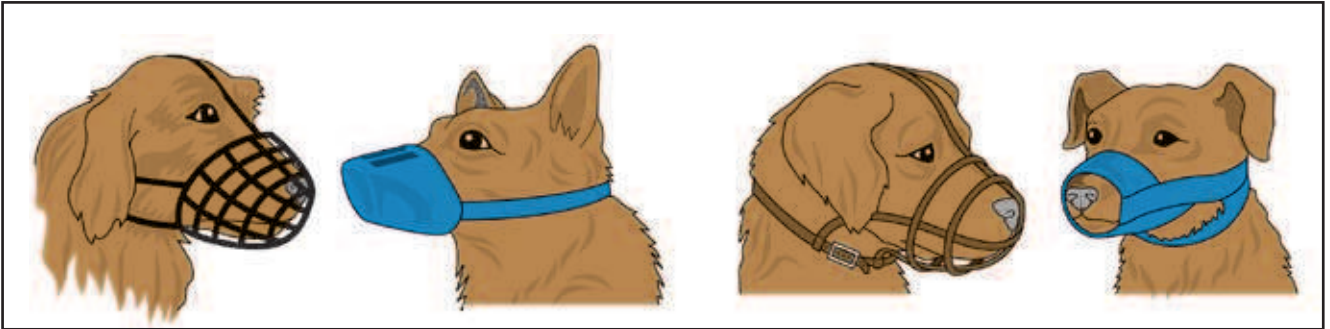
Muzzles

Whenever possible, a dog should be muzzled *before* it tries to bite. It can be far more difficult to put a muzzle on a dog that has already decided that you are a threat and has discovered that trying to bite is effective in making you back off.

A variety of fabric, plastic and leather muzzles is available (Figure 10.15). A good selection of different types and sizes should always be to hand. Note that open-ended muzzles may still allow a dog to 'nip' with its front teeth.

If a dog is to be muzzled for longer than a few minutes, it is important always to use a basket-type muzzle that allows the dog to open its mouth, enabling it to pant or vomit. A dog must never be left unattended for any length of time whilst muzzled.

If a dog is a regular patient and frequently needs to be muzzled, it is a good idea to provide the owner with a suitable muzzle to take home. The owner should be advised to put the muzzle on the dog frequently for short periods and reward the dog with food treats, play, affection, and even walks whilst wearing the muzzle. The dog will then make pleasant associations with wearing the muzzle, making it easier for the owner to put the muzzle on the dog before bringing it into the surgery.



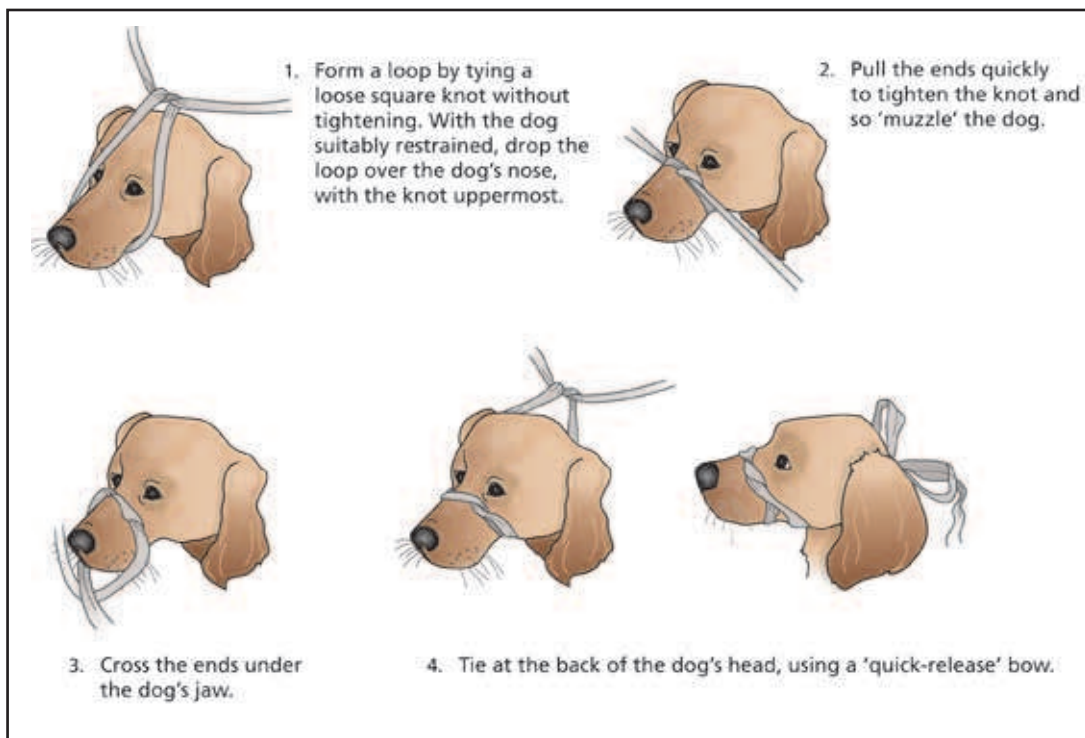
10.15 Examples of muzzles, from left to right: closed basket type; closed plastic; semi-closed leather; open-ended fabric.

Applying a tape muzzle

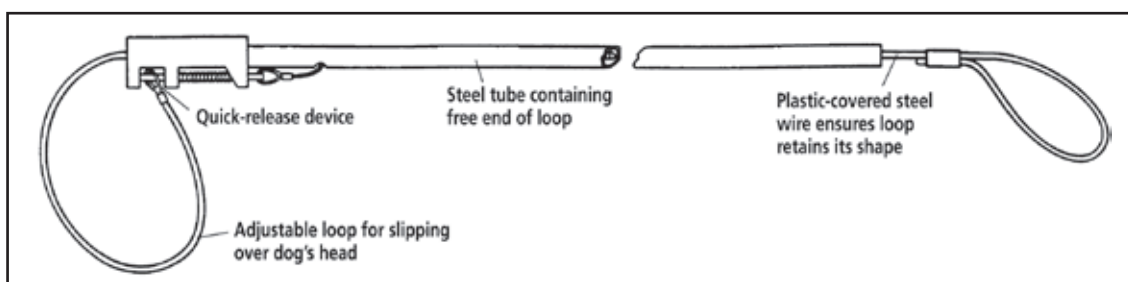
Figure 10.16 shows the steps in applying a tape muzzle. The tape must be pulled tight in order for the muzzle to be effective, but this can be uncomfortable for the dog and may even cause some slight injury. Therefore this muzzle should only be used in an emergency or if it is not possible to get close enough to the dog to use any other type of muzzle. Often a commercial muzzle can be placed over the tape muzzle and once securely in place the tape muzzle can be allowed to come loose.

Using a 'dog-catcher'

The noose of the dog-catcher (Figure 10.17) is dropped over the animal's head and then tightened, thereby reducing the risk of injury to the handler when taking hold of a severely aggressive dog. The use of a dog-catcher can be highly traumatic for a dog, so it should only ever be used as a last resort.



10.16 Applying a tape muzzle. Use a length of tape or non-stretch bandage at least 100 cm long for a medium-sized dog.

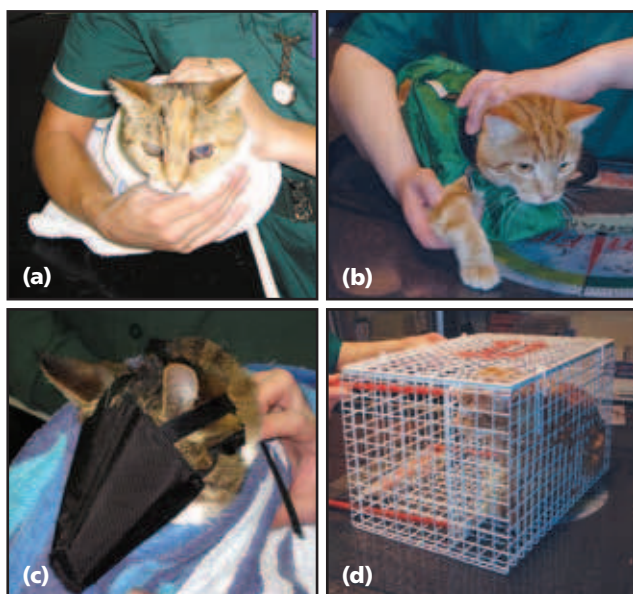


10.17 A dog-catcher.

Cats

Fractious cats can often be adequately restrained by wrapping them in a large towel. An alternative is a 'cat restraining bag'. Cat muzzles may also be of use. Both cat muzzles and restraining bags can also help to calm a fractious cat (Figure 10.18).

Use of a 'crush cage' may be necessary with cats that cannot be handled. This is similar to a wire cat carrier but with a movable partition that is used to press the cat against one side of the cage, allowing an injection to be given through the mesh of the cage. If a crush cage is not available, or if the cat cannot be moved from its carrier, the lid or door of the carrier can be opened just enough to allow thick towels to be pushed into the carrier but not enough to allow the cat to escape. The towels are then used to press the cat against the side of the cage, allowing an injection to be given.



10.18 Ways of restraining fractious cats. (a) Wrapping in a towel. (b) Cat restraining bag. (c) Cat muzzle. (d) Crush cage.

Handling and restraint of horses

The principles of handling other equine species are similar to those described here for horses and ponies. Donkeys in particular can become very stressed if not used to handling or transportation. It is usual practice with donkeys to provide a companion if possible during travel and also to hospitalize them with a companion, as they become very stressed on their own. The reader is referred to *The Professional Handbook of the Donkey* for more information.

Understanding equine behaviour

Normal equine behaviour can be understood if they are observed in their natural state in a herd setting. Horses are prey animals, which affects their behaviour when placed in stressful situations. Horses are, however, also naturally inquisitive

animals that will investigate things in the first instance and then escape if danger is presented. When handling a horse it is important to be aware of signals that may indicate a change in its behaviour (e.g. if it becomes fearful or aggressive), that indicate potential danger if actions are not taken.

Aggression

Horses may demonstrate aggression for a number of reasons.

- Aggression may be used as a protective mechanism; for example, a mare that is 'foal-proud' may be difficult to approach, so restraining the mare must be a priority before approaching the foal.
- Horses may become aggressive if stabled for a protracted period of time and boredom sets in, causing anxiety and/or stable guarding.
- Horses may also demonstrate aggression toward each other as normal dominance behaviour in a herd. Animals that are at the top of the 'pecking order' in their herd will want to continue this behaviour in any setting when mixed with other horses. Care must be taken not to place yourself in the area of danger from kicks or bites.

Horses displaying aggression will normally exhibit some outward signs, including tail swishing and obvious baring of teeth (Figure 10.19); the ears will lay flat against the head and some horses will strike out with the front legs or swing the quarters round to kick out with the hindlimbs.

Some stallions, in particular, are very difficult to handle, especially if used for breeding purposes. Any stallion admitted for clinical reasons into a hospital setting should be treated with caution. They should be separated, if possible, from mares and sometimes they are more cooperative when handled by male personnel.



10.19 A horse showing aggression: ears flat to head and teeth bared.

Fear

Horses that display fear may also display signs of aggression. They may retreat to the back of the stable or move away in the field but, when pressed, can also kick out.

Content/normal behaviour

A 'happy', relaxed horse (Figure 10.20) will stand to the front of its stable and approach with an inquisitive mind, with the ears forward or slightly to the side. The relaxed horse will often sleep if contented in the stable/field environment. Horses are able to lock the joints of their limbs so that they can sleep whilst standing (see Chapter 3). In a herd situation, one horse may be left standing whilst the remainder are able to lie completely recumbent.



10.20 A horse showing a normal relaxed resting stance. (Courtesy of B. Cooper)

Approach

Before performing a task with the horse, everything required should be to hand so that the procedure runs smoothly without interruption. **Personal protective equipment (Figure 10.21)** should include suitable footwear (preferably with steel toe caps), leather gloves, long-sleeved top and a skull cap if lungeing or trotting up. Horses can be unpredictable and even the most placid horse can become excitable or stressed in unfamiliar surroundings.



10.21 Handling for lungeing and trotting up, wearing gloves and skull cap.

Horses should be approached in the same manner whether in the field or stable. Common to many prey animals, their eyes are situated on the side of the head, enabling them to see the area to either side in a panoramic fashion. However, vision directly in front of and behind the horse is inhibited and the horse should not be approached from those angles. Traditionally, horses are taught to be led from the **near side** (the horse's left shoulder), although most horses should be able to be led from either side when necessary.

Putting on a head collar

The horse should be approached towards the shoulder and verbal communication used. At this point it may be advisable to slip the lead-rope over the neck to prevent the horse from wandering off, although most horses will happily place their nose into the head collar. The horse should never be forced into the corner of the stable. If the horse turns away and displays its hindquarters this is an indication that it is not happy, and it is important not to try and squeeze between the horse and the wall. It is far better to tempt the horse with a reward to entice it to face towards you.

How to put on a head collar

1. Ensure that you have a large enough head collar and rope to be able to secure the horse.
2. Get the horse's attention so that it knows that you are going to enter the stable.
3. Stand next to the horse's near side (left) shoulder, facing forward, and place the noseband over the nose, slowly inserting the nose through the large hole (nosepiece).
4. Take the long strap up and over behind the ears and secure the buckle fastener on the left side of the cheek.
5. Make sure you can fit a hand's width under the chin; this ensures the head collar is not too tight.



Considerations when putting a head collar on a horse

- **Do not** allow the lead-rope to dangle on to the floor; this is a tripping hazard to both handler and horse



- **Do** keep the lead-rope over your shoulder to prevent tripping.



Putting on a bridle with a bit

Most horses can be led by a simple bridle or headpiece with a head collar over the top. However, more difficult or young animals may require the use of a Chifney (anti-rearing bit) (Figure 10.22). The bit is designed for in-hand use only. The Chifney attaches to a headpiece and has a single loose ring for the lead-rope to attach to at the back of the horse's chin. The thin V-shaped bit will dig into the horse's tongue if it tries to rear or pull. A Chifney must be used in experienced hands only, as it can cause injury and discomfort with insensitive use.



10.22 Simple headpiece with Chifney.



Using a Chifney bit

1. Place the bit with the top edge between the horse's lips and with a thumb behind the incisors. The bottom edge with the ring should be below the horse's jaw.
2. Secure the bridle over the ears.



3. Check that any forelock is pulled from beneath the bridle and that the Chifney is sitting in a comfortable position in the gap between the incisors and cheek teeth.
4. Once the head collar is on, attach the lead-rope to the ring on the head collar as well as to the ring on the Chifney – this prevents undue pressure and potential injury to the horse when pulling against the Chifney, as the loop cannot travel any further away from the jaw than the head collar will allow.

A bridle with a simple bit, such as a simple loose ring snaffle (Figure 10.23), may also be used for handling.



10.23 Simple headpiece with loose ring snaffle.

How to put on a bridle with a bit

1. Approach the horse from the left shoulder and place your hand around its head to secure the horse in a comfortable position; note the bridle cannot be placed with the head in an elevated position.

2. Hold the headpiece up against the head, apply gentle pressure with the bit and place your thumb in behind the incisors at the same time.



3. Once the bit has been accepted by the horse, place the headpiece over its ears.



4. Once in position, adjust the headpiece to fit, so that there are no more than two creases in the edge of the lip and the bit is not dangling on the incisors.

5. Place the head collar over the headpiece to prevent the headpiece from being pulled over the head if the horse runs backwards sharply.

To remove the bridle, take hold of it from behind the ears and allow the bit to gently drop between the incisors; a hand should be held under the nose to catch the bit to prevent it banging on the teeth.

Leading a horse

Once the head collar is on, the horse should be walked at its shoulder (Figure 10.24). The horse should not be allowed to get too far ahead as it may run off. The remaining lead-rope should never be wrapped around the handler's hand, as injury may occur if the horse rears or pulls back. The rope should be held with the right hand approximately 20 cm from the jaw and the remaining rope loosely held in the left hand. Hands should never be placed through the head collar. In a hospital environment where the animal is unknown to the nurse, it may be wise to use a simple snaffle bit and headpiece in

conjunction with the head collar to facilitate more control, especially if 'trotting up' or exercising on a lunge is to be performed. When leading a horse for dynamic evaluation a suitable level area should be sought, where the horse can be walked or trotted for 20 m in a straight line. When turning the horse (turning should be done in walk only) the handler should turn the animal away from them in a fairly wide circle to prevent the horse from treading on human toes. It is only common sense to try to ensure that this is carried out in an area from which the horse cannot escape. Potentially severe consequences can result from horses escaping on to public roads.



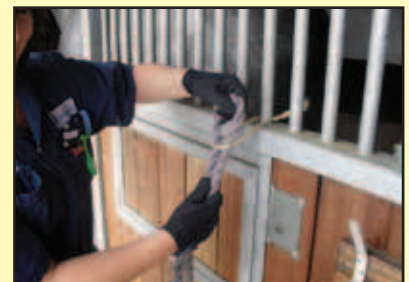
10.24 Walking the horse from the shoulder with bridle and head collar.

Tying up a horse

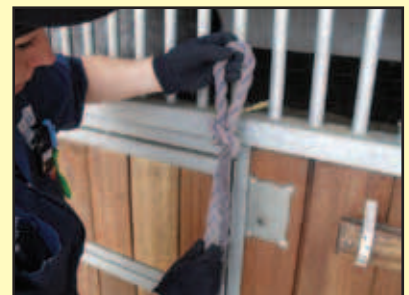
Horses should always be tied up using a 'quick-release' knot, allowing them to be quickly untied in case of emergency. The horse should always be tied to a bale twine or commercial rubber loop; it should never be tied to something that will not break if the horse should panic.

How to tie a quick-release knot

1. Thread the lead-rope through the bale twine and keep a small loop.



2. Thread the lead-rope through the first loop to produce a second loop.



continues ►

continued

3. Pull the knot to secure it, and thread the remaining end through the second loop made to prevent the horse from pulling on the end and untying itself.



Picking up a foot

The horse should be restrained by a handler or tied to a suitable tie ring with a quick-release knot before it is approached to pick up a foot. The horse should be allowed to stand evenly, weight bearing on all four limbs, before the command to lift a foot is given.

Forefoot

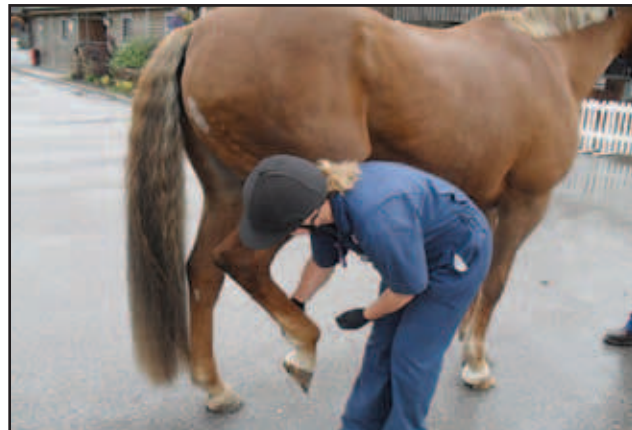
The handler should stand facing the tail at all times. To lift the forefoot, the handler's hand should be placed on the shoulder of the horse and run down the caudal and then palmar aspect of the limb until the fetlock is reached. Gentle pressure should then be applied to the area and the horse commanded to lift the limb (the command would usually be 'up'). As the horse lifts the limb, the area from the dorso-medial aspect of the foot should be supported and held gently (Figure 10.25). Keeping in close contact with the horse's shoulder will allow the handler to detect any movement from the horse and anticipate the horse snatching the foot down; the handler should stay ahead of the horse to prevent injury from the horse striking out with its limb. Examining and cleaning of the hoof (see Chapter 16) should be carried out twice a day, especially in a hospital environment where the horse is standing in the stable and fungal infection can occur as a result of poor foot care.



10.25 Picking up a forefoot.

Hindfoot

The hindfoot should be approached in a similar manner, with the approach from the front of the horse back to the quarters and down the caudal then plantar aspect with pressure to the fetlock. The handler should again remain close to the



10.26 Picking up a hindfoot.

horse to minimize the risk of being kicked. The foot should not be restrained, but instead the limb should be supported, as a pressured horse will kick out (Figure 10.26).

Examination of the mouth

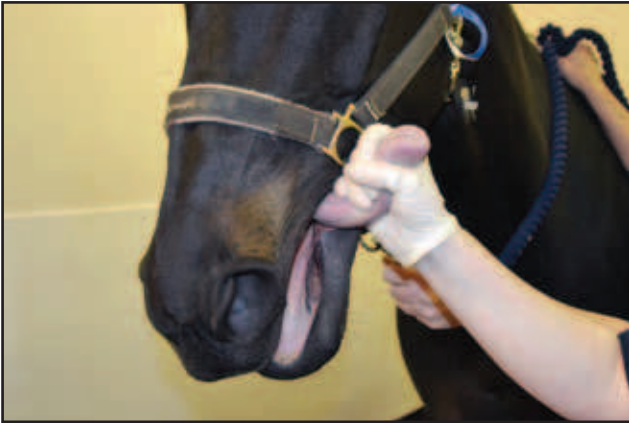
Some medications, such as worming, anti-inflammatory and antibiotic pastes (see Chapter 8), can be given straight into the mouth. With the horse restrained using a head collar, the syringe nozzle is inserted into the corner of the mouth so it is as near the back of the tongue as possible (Figure 10.27).



10.27 Giving oral medication to a horse. The syringe is placed in the corner of the mouth and directed towards the back of the tongue.

A cursory examination of the equine mouth can be made by gently holding the tongue in one hand through the side of the mouth between the canine and premolar teeth (Figure 10.28). To examine a horse's mouth properly, and to carry out any dental work, a gag is needed (typically a Hausmann's gag).

Apart from rasping teeth with a hand rasp, all other procedures (including any tooth extractions and use of motorized dental instruments) must be carried out by a veterinary surgeon or a BEVA-accredited equine dental technician. Removal of teeth with significant periodontal attachment is an act of veterinary surgery and may only be carried out by a veterinary surgeon. In the case of a fractious horse that needs sedation to perform an oral examination, a veterinary surgeon must be present to administer sedation or supervise the nurse. This does not prevent nurses from assisting with the preparation of the equipment and patient.

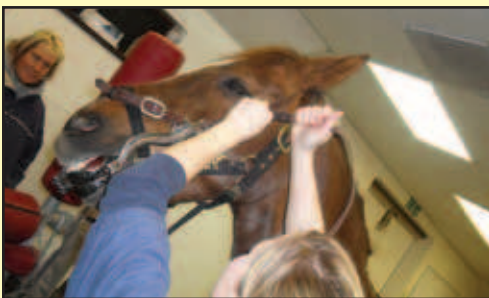


10.28 Holding the tongue to examine the mouth. The tongue is gently withdrawn into the space between the canine and premolar teeth allowing the teeth on the opposite side of the mouth to be examined.

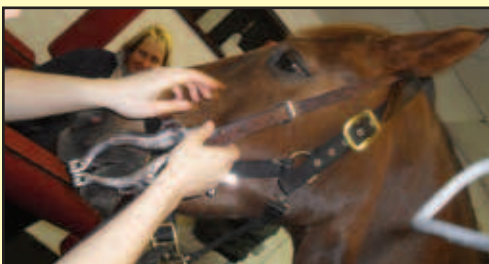
Mouth examination procedure

A set of stocks may be used to prevent the horse from moving about during examination. The area should be well lit, to facilitate the oral examination, and quiet to prevent interruption.

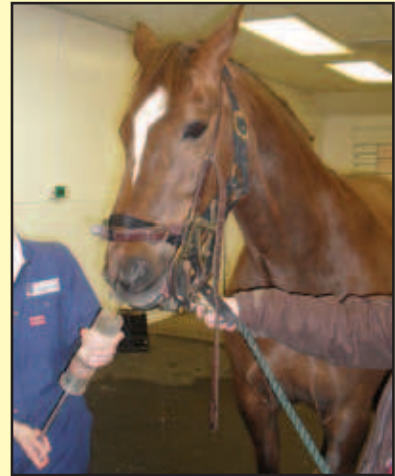
1. Once the patient is *in situ*, a Hausmann's gag can be placed in its mouth. It is very important that the size of the gag fits the patient; one size will not fit all. The gag should be carefully placed on the horse. The strap must sit behind the ears in a normal headpiece position and then be tightened until the plates fit neatly between the teeth; there should be no gap between the front of the bite plate and the incisor teeth. A loose strap will allow the gag to slip and the horse's mouth to close on the vet.



2. Once the gag is safely in place the plates can be widened one click at a time, going from one side of the gag to the other, giving the horse time to adjust each time the gag is widened. Once the gag is wide enough to allow the vet to palpate the teeth safely, examination can begin.

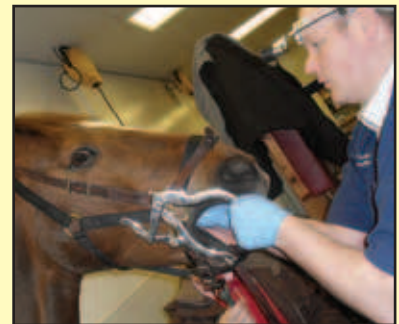


3. The mouth is first washed to remove any food material.



4. The dental examination can then begin, followed by any necessary dental work. Note that one hand should be placed on the gag whilst the other is in the mouth to control the horse's head. The horse may be rested several times during the procedure to prevent temporomandibular joint pain. Oral extractions may take several hours, so patience is required.

Mouth being palpated for abnormalities.



Oral examination with a head-torch.



Teeth being rasped.



Restraint for procedures

When performing tasks such as intravenous catheterization or nerve blocks, additional restraint may be required; this may be as simple as holding the tail to keep the horse weight bearing (Figure 10.29), or lifting and holding a foreleg in order to examine a hindleg. More involved restraint techniques, such as the application of a twitch or chemical restraint, may be required in some cases.



10.29

Holding the tail to keep the horse weight bearing.

Application of a 'twitch'

Applying a skin twitch to the neck or shoulder may encourage the horse to remain still for a procedure. This can be done by holding a small amount of skin firmly in the hand (Figure 10.30).

A nose twitch consists of a length of wood (or metal or rubber, which are usually much safer) with a rope attached at one end in a loop. Commercial twitches are also available. It must be placed carefully to prevent injury to the horse and the handler, and must not be left in place for more than 5 minutes.



10.30

Skin twitch.

How to apply a nose twitch

A handler is required to stand at the side of the horse, and on the same side as the person applying the twitch in order to prevent the horse from jumping on to them.

1. Place one hand on the pole and your second hand through the rope, which should then be placed on the horse's upper lip.



2. Slide the rope over the hand on to the lip and then twist it until it grips a firm amount of skin.



3. Twist the lead-rope over the handle of the twitch so that, should the horse throw its head upwards, the twitch will not swing and collide with the horse's head or the handler.

WARNING

A twitch should never be used on an ear, as this can cause permanent damage and may also cause the animal to become head shy.

It is essential to monitor a horse's behaviour very carefully when it is 'twitched', as of all the restraint techniques employed it is the one most commonly associated with injury to personnel. Some horses will suddenly react or strike out when 'twitched', but usually they will give signs such as closing their eyes before this happens. Under such circumstances, the twitch should be removed immediately.

Transporting horses

Legislation

Defra has specific guidelines on the transport of horses, which state that within the United Kingdom transporting a horse in a way that is detrimental to its welfare would be a breach of the Animal Welfare Act 2006. The Act states that a person commits an offence if they are responsible for an animal, either permanently or temporarily, and either cause the animal to suffer or fail to ensure its need are met.

Other legislation controlling the transport of horses includes:

- The Horses (Sea Transport) Order 1952 – amended 1958
- The Transit of Animals (Road and Rail) Order 1975 – amended 1979 and 1988
- The Welfare of Animals (Transit) Order 1997.

The Horserace Betting Levy Board also provides additional guidelines on the transport of racehorses. These give details of the size of carrier transport, the length of time a horse can be transported, periods of rest and the prevention of transporting horses that may be unfit for transport due to

ill health, or transportation of mares in early pregnancy. For all horses, rest periods should be applied every 8 hours and for horses travelling over 24 hours, a 24-hour break should be given.

Equine passports

Horse owners are responsible for making sure that they have an up-to-date horse passport, so that their horse can be identified. Passport legislation covers all horses, ponies, donkeys and zebras. Foals must be registered with a suitable passport agency recognized by Defra before the foal is 6 months old or before 31 December in the year of birth, whichever is later. Owners can be fined up to £5000 for not having a passport. An equine animal cannot be moved/transported without a valid passport. The passport must be available for inspection by trading standards officers or Animal Health Officers. If a passport has been applied for, this information must be given so that the officer may check for the application with the relevant body. Passports are available from several issuing bodies, including equine breed societies.

Horse passports are important because they help to:

- Ensure horses that have been treated with certain medicines do not make it into food intended for humans (see Chapter 8)
- Prevent the sale of stolen horses.

The passport will contain details about the horse, including its appearance, which is illustrated in a diagram, microchip details (Chapter 16), age, breed/type and all the medications it has been given (if it has been declared 'intended for human consumption'). Passports require a signed statement by the owner that it is NOT intended for human consumption, otherwise it is presumed that it is intended for human consumption; this is important for the administration of medication (see Chapter 8).

Practical considerations

Transporting a horse can be stressful to the animal and this must always be taken into consideration. Horses can become dehydrated, even over a short journey, and regular water should be offered at rest breaks.

Horses should be allowed to spend at least some of the journey with their head in a lowered position, with good ventilation as this will help to decrease the risk of respiratory complications. Any horse with a pre-existing respiratory problem should preferably not be transported. If transport is necessary, then careful monitoring for further exacerbation of the disease, which could lead to pleurisy/pneumonia, is necessary.

Correct travel clothing should be used for all horses that are travelling. This should include padded bandages that cover the limb from the hoof to above the carpus and tarsus to prevent rubbing and knocks, or commercial travelling boots (Figure 10.31). Poll guards to protect the top of the head in the event of rearing in a confined space (Figure 10.32), and a tail bandage and guard to protect against rubs, are also available. A rug may be necessary, but care should be taken when transporting several horses in a small area, as overheating can worsen dehydration. A sweat rug may be applied at the end of the journey.



10.31

Travelling boots.



10.32

Poll guard.

Transport to the veterinary practice

Not all horses travel regularly and care should be taken not to hurry such patients when travelling to or from the surgery; owners should be advised to give themselves plenty of time to load and unload. Injured or sick horses must travel only on the authorization of a veterinary surgeon. Each case should be given special consideration; horses in splints for suspected fractures should be loaded on a flat surface if possible, with the ramp elevated to help protrusion of the leg in the case of a forelimb. Horses with a forelimb fracture should travel facing backwards, whereas those with hindlimb fractures should face forwards. This will allow them to cope if the horse box has to brake suddenly. Any horse with an injury or rhabdomyolysis (tying up) should not be moved more than necessary and the transport should be for as short a distance as possible. Foals should be allowed to travel with the mare without a partition if possible. Personnel should not travel in the back with an animal, unless it is in a specially adapted ambulance.

Handling and restraint of exotic pets

Removing patients from travelling boxes

Removing exotic pets from their travelling boxes for examination can be a challenge in itself and depends to a certain extent on the type of carrying box the animal has arrived in and the species. Examples of dealing with different types of pets in differing boxes are given below; however, these should be considered in conjunction with the species-specific advice that follows. Exotic pets should be fully assessed before any attempt is made to remove them from their cages or boxes. In all cases, it is easier to remove the patient when the handler is at roughly the same level; therefore, picking the box up and placing it on to a table with a non-slip mat is preferred. In some cases with larger rabbits, it may be preferable to kneel down and remove the patient from its box on the floor.

Top-loading boxes

In most cases it is best to consider sliding a towel in underneath the lid before the lid is fully opened to ensure that the patient does not suddenly leap out, in the case of a rabbit or ferret, or fly out, in the case of a parrot. The towel may then be allowed to cover the animal whilst the lid is carefully opened and the animal scooped out of the carrying box. In the case of ferrets and rabbits that are fractious or nervous it may be advisable to grasp the scruff of the neck with one hand through the towel, whilst reaching underneath and restraining the hindlegs around the hocks. The rabbit or ferret may then be carefully lifted out and placed on to a non-slip surface.

Side-front-loading boxes

For rabbits and other small mammals in this type of box it is preferable to remove the door where possible, as this increases the opening available for removal of the patient. A towel may then be introduced and the scruff of the neck grasped, to allow the patient to be moved forward enough

to allow the hindlegs to be grasped and the animal removed as described above.

In the case of a parrot or other larger cagebird, a towel should be carefully introduced to prevent escape of the bird past the towel. This should then be draped over the head and body, and the head grasped from behind, transferring the thumb and fingers underneath the lower mandible to control the beak. The rest of the towel is then used to drape over the wings and body and the other hand is used to wrap the bird in the towel to prevent it flapping and hurting itself. The bird may then be removed from the box.

Bird cages

Many smaller cagebirds are transported to the practice in their everyday cage. This can be useful to assess the local environment and the type of droppings the bird has been passing recently, assuming it has not been cleaned out prior to the visit. However, such cages may present a problem in removing the bird safely from the cage as many small cagebirds have plentiful perches, toys (e.g. mirrors, bells) and food items that provide cover to hide behind and that could potentially cause damage. The first aim is therefore to remove the majority of these obstructions carefully from the cage.

In the case of highly nervous and flighty individuals, it may be sensible to transfer the cage into a darkened room as diurnal (day-active) birds do not see well in red light; this makes catching the patient easier. Once the cage has been depopulated of toys, etc., a small hand towel or paper towel may be introduced through the largest opening to aid the catching of the bird. This presents a larger surface area than the hand alone, and so tends to make the bird less likely to dodge around the towel and escape. It also provides something for the patient to bite on whilst trying to control the head and beak, and allows some passive restraint of the wings as well (Figure 10.33).

Rodent cages

As with bird cages there may be a lot of cage furniture inside these enclosures and the majority should be removed to allow free access. Hamsters in modular housing should be encouraged to move into their sleeping quarters, which may then be detached from the maze of tunnels.



10.33 Removing a parrot from its cage. **(a)** The towel and hand are introduced into the cage. **(b)** The bird is firmly but gently grasped from the back. The head must be located first, to allow the thumb and forefingers to be positioned underneath the lower beak, in order that it can be pushed upwards thus preventing the bird from biting. The rest of the towel is then used to wrap around the bird to gently restrain its wing movement. This will avoid excessive struggling and wing trauma. **(c)** The patient may then be cocooned in the towel with the head still held extended from behind through the towel and the rest loosely wrapped around the bird's body.

Once the cage is cleared of excess furniture, a light hand towel or paper towel may be introduced and draped over the rodent to initially restrain it. The scruff of the neck may then be firmly grasped, as described below for more active and aggressive animals such as hamsters. Alternatively, the thumb and forefingers may be slid under the forelimbs and the other hand introduced to support the rear end of more docile rodents such as chinchillas and rats.

Handling and restraint of small mammals

Pet mammals come in many different shapes and sizes, and from many different backgrounds – from those more adapted to human co-habitation such as mice and rats, through to the animals more recently adopted as pets, such as chipmunks, which are still semi-wild in nature.

Assessment before handling

1. Is the patient severely debilitated and/or in respiratory distress?

Examples include the pneumonic rabbit, with obvious oculonasal discharge and dyspnoea, or older rats with chronic lung disease. Excessive or rough handling of these patients is contraindicated and the journey into the veterinary practice may already have caused further stress.

2. Is the species a tame one?

Examples of the more unusual small mammals that may be kept include chipmunks, marmosets and other small primates, opossums and raccoons. All of these are potentially hazardous to handlers and themselves, as they will often bolt for freedom when frightened, or turn and fight. Even the more routinely kept small mammals may be aggressive, e.g. hamsters.

3. Is the small mammal suffering from a metabolic bone disease?

This is often seen in small primates, young rabbits and guinea pigs. The diet may have been inadequate with regard to calcium and vitamin D₃, and exposure to natural sunlight may be absent. Hence long-bone mineralization during growth will be poor, leading to spontaneous or easily fractured bones.

4. Does the small mammal patient require medication/physical examination?

If so, handling is often essential.

Rabbits

The majority of domestic rabbits are docile, but the odd aggressive doe or buck, usually those not used to being handled, does exist. The potential dangers to the veterinary nurse arise from the claws, which can inflict deep scratches rivaling those inflicted by cats, and the incisors, which can produce deep bites. Aggression is frequently worse at the start of the breeding season in March/April. In addition to the damage they may cause the handler, a struggling rabbit may lash out with its powerful hindlimbs and fracture or dislocate its spine. Severe stress can even induce cardiac arrest in some individuals. Rapid and safe restraint is therefore essential.

To this end, if aggressive, the rabbit may be grasped by the scruff with one hand whilst the other hand supports

underneath the rear legs. If the rabbit is not aggressive then one hand may be placed under the thorax, with the thumb and first two fingers encircling the front limbs, whilst the other is placed under the rear legs to support the back.

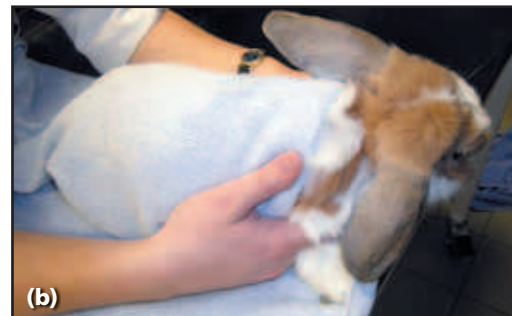
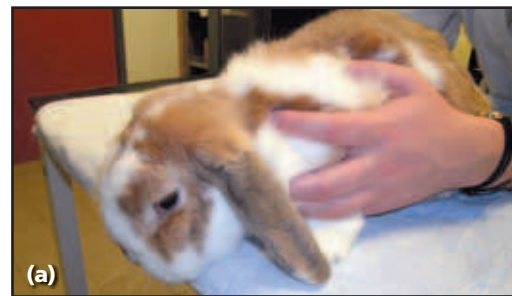
When transferring the rabbit from one room to another it must be held close to the handler's chest. Non-fractious individuals may also be supported with their heads pushed into the crook of one arm, with that forearm supporting the length of the rabbit's body; the other hand is then used to place pressure/grasp the scruff region (Figure 10.34).



10.34 Carrying a docile rabbit, with its head in the crook of the elbow. Most rabbits find this method of restraint settling. (Reproduced from the *BSAVA Manual of Rabbit Medicine and Surgery, 2nd edition*)

Once caught, the rabbit may be calmed further by wrapping it in a towel, similar to the method used for cats, so that just the head protrudes in a 'bunny burrito' (Figure 10.35). There are also available specific rabbit 'papooses' that zip up along the rabbit's dorsum, leaving the head/ears free for blood sampling, but confining the limbs to prevent escape or self-harm. It is important not to allow rabbits to overheat in this position, as they, like a lot of small mammals, do not have significant sweat glands and do not actively pant. They can therefore quickly overheat if their environmental temperature exceeds 23–25°C, with fatal results.

Covering a rabbit's eyes will often help to calm it (Figure 10.36).



10.35 The 'bunny burrito': restraining a rabbit by wrapping it in a towel. **(a)** The rabbit is placed on a towel, facing away from the handler. **(b)** One side of the towel is wrapped firmly across the dorsum, covering the forefeet but leaving the head exposed. *continues ▶*



10.35 *continued* The 'bunny burrito': restraining a rabbit by wrapping it in a towel. **(c)** The back of the towel is folded up over the lumbar region. **(d)** The remaining side of the towel is wrapped across the dorsum and tucked in ventrally on the opposing side to complete the wrap. (Reproduced from the *BSAVA Manual of Rabbit Medicine and Surgery, 2nd edition*)



10.36 A hand over the rabbit's eyes helps to keep the animal calm. (Courtesy of C Clarke)

Trancing and turning

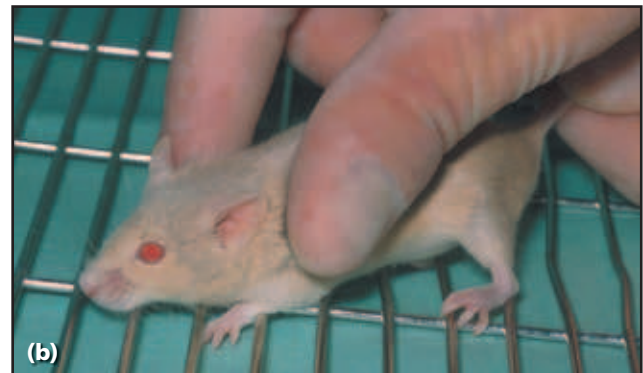
The method of restraint commonly known as 'trancing' (more accurately, creating a state of tonic immobility), whereby a rabbit is induced to become immobile after lowering it into a dorsal recumbency, is not recommended. Contrary to popular belief, rabbits in a state of tonic immobility are not relaxed, hypnotized or insensitive to pain. Scientists believe that this is a defence mechanism employed once a rabbit has already been 'caught' by a potential predator. By remaining very still the rabbit may appear already dead, thereby causing the attacker to release its grip momentarily and allow the rabbit to escape. Research has shown that in this state rabbits show increased heart and respiratory rates plus elevated plasma corticosterone levels, indicative of fear-induced stress. The stress caused by this procedure may prove fatal, especially for rabbits suffering from respiratory or cardiovascular disease, and the sudden transition from the passive state to one of very active escape can be instantaneous and unpredictable and may result in significant injury to the patient.

Enlisting the help of an assistant, to raise the rabbit's forelimbs off the ground, whilst keeping the rabbit's hindlimbs in contact with a solid surface, allows for ventral examination of rabbits.

Rodents

Mice and rats

Mice will frequently bite an unfamiliar handler, especially in strange surroundings. It is first useful to grasp the tail near to the base and then place the mouse on a non-slip surface (Figure 10.37a). Whilst still holding the tail, the scruff may now be grasped firmly between the thumb and forefinger of the other hand (Figure 10.37b), allowing the mouse to be turned and examined as necessary (Figure 10.37c).



10.37 Handling techniques for mice. (Reproduced from *BSAVA Manual of Exotic Pets, 4th edition*)

Rats will rarely bite unless roughly handled (Figure 10.38). They are best picked up by encircling the pectoral girdle, immediately behind the front limbs, with the thumb and fingers of one hand whilst bringing the other hand underneath the rear limbs to support the rat's weight (Figure 10.39). The more fractious rat may be temporarily restrained by grasping the base of the tail before scruffing it with thumb and forefinger.



10.38 Holding a tame rat. (Courtesy of C Clarke)



10.39 Restraining a rat. (Reproduced from *BSAVA Manual of Exotic Pets, 4th edition*)

WARNING

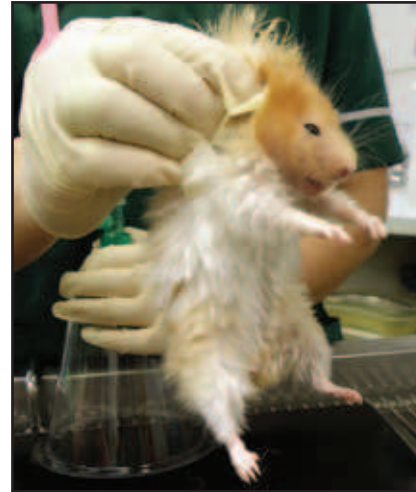
Under no circumstances should mice or rats be restrained by the tips of their tails, as de-gloving injuries to the skin in this area will easily occur.

Hamsters and gerbils

Hamsters can be relatively difficult to handle as, being nocturnal, they are never pleased at being awoken and picked up during daylight hours. If the hamster is relatively tame and used to being handled, simply cupping the hands underneath the animal is sufficient to transfer it from one cage to another.

Some breeds of hamster are more aggressive than others, with Russian, Djungarian or hairy-footed hamsters being notorious for their short temper. In these cases, the hamster should be placed on to a firm flat surface and gentle but firm pressure placed on to the scruff region with finger and thumb of one hand. As much of the scruff as possible should then be grasped, with the direction of pull in a cranial manner to ensure that the skin is not drawn tight around the eyes (Figure 10.40); hamsters have a tendency for ocular proptosis if roughly scruffed. If a very aggressive animal is encountered, the use of a small glass/perspex container with a lid for examination and transport purposes is useful.

Gerbils are relatively docile but can jump extremely well when frightened and may bite if roughly handled. For simple transport they may be moved from one place to another by cupping the hands underneath the gerbil. Small mammals should always be approached from the side and at low levels, as when they are descended upon from a great height, the



10.40

Handling a hamster. (Courtesy of Aiden Rafferty)

handler's hands mimic the swooping action of a bird of prey, startling the rodent.

For more rigorous restraint, the gerbil may be grasped by the scruff between thumb and forefinger of one hand after placing it on to a flat level surface. It is vitally important not to grasp a gerbil by the tail as this will lead to stripping of the tail's skin leaving denuded coccygeal vertebrae. This will never regrow and the denuded vertebrae will themselves undergo avascular necrosis and drop off later. Jirds and jerboas are related species, and handling techniques are the same.

Guinea pigs, chinchillas and degus

Guinea pigs are rarely aggressive, but they become highly stressed when separated from their companions and normal surroundings. This makes them difficult to catch, as they will move at high speed in their cage. To aid restraint, dimmed lighting can be used and environmental noise restricted to reduce stress levels. Restraint is also easier if the guinea pig is already in a small box or cage, as there is less room for it to escape.

To restrain a guinea pig, it should be grasped behind the front limbs from the dorsal aspect with one hand, whilst the other is placed beneath the rear limbs to support the weight (Figure 10.41). This is particularly important as the guinea pig has a large abdomen, but slender bones and spine that may be easily damaged.

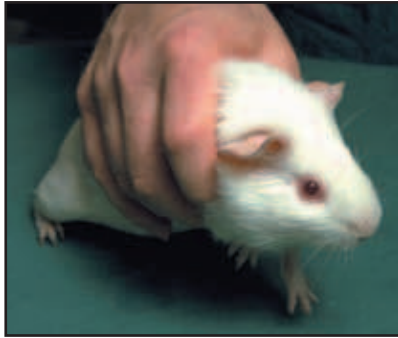
Chinchillas are equally timorous and rarely if ever bite. They too can be easily stressed, and dimming room lighting and reducing noise can be useful during capture.

Some chinchillas when particularly stressed will rear up on their hindlegs and urinate at the handler, with surprising accuracy. It is therefore essential to pick up the chinchilla calmly and quickly with minimal restraint, placing one hand around the pectoral girdle from the dorsal aspect just behind the front legs, with the other hand cupping the hindlegs and supporting the chinchilla's weight.

Degus may be handled in a similar way to chinchillas.

WARNING

Chinchillas must not be scruffed under any circumstances, as this will result in the loss of fur at the site held. Chinchillas may actually lose some fur due to the stress of the restraint, even if no physical gripping of the skin occurs. This 'fur slip' as it is known, will leave a bare patch, which will take many weeks to regrow.



10.41

Restraining a guinea pig. The animal is first grasped around its shoulders. It can then be lifted, with the hindquarters supported.



Chipmunks

There are more than 24 species of chipmunk, with the commonest seen in the UK currently being the Siberian species, although North American smaller species are also kept. Chipmunks are extremely highly strung and the avoidance of stress is essential to avoid fatalities. Generally, they are very difficult to handle without being bitten, unless hand-reared when they may be scruffed quickly, or cupped in both hands. To catch them in their aviary-style enclosures the easiest method is to use a fine-meshed aviary/butterfly net, preferably made of a dark material. The chipmunk may then be safely netted and quickly transferred to a towel for manual restraint, examination or injection/induction of chemical restraint.

Ferrets

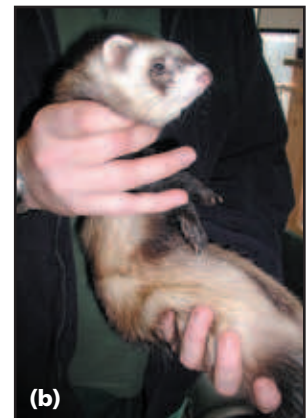
Ferrets can make excellent house pets and many are friendly and hand-tame. Some ferrets kept as working animals, to hunt rabbits, may be less frequently handled and more aggressive.

For excitable or aggressive animals, a firm grasp of the scruff, high up at the back of the neck should be made. The ferret may be suspended from this whilst stabilizing the lower body with the other hand around the pelvis (Figure 10.42). In the case of more hand-tame animals, they may be suspended with one hand behind the front legs, cupped between thumb and fingers from the dorsal aspect, with the other hand supporting the rear limbs (Figure 10.43a). This may be varied somewhat in the more lively individuals by placing the thumb of one hand underneath the chin, so pushing the jaw upwards, and the rest of the fingers grasping the other side of the neck (Figure 10.43b). The other hand is then brought under the rear limbs as support.



10.42

Holding a potentially aggressive ferret, using the scruff. (Courtesy of S Redrobe)



10.43

Holding a less aggressive ferret. (Courtesy of S Redrobe)

Handling and restraint of birds

As with small mammals, the veterinary nurse needs to make a decision on whether the bird in question is safe to restrain. This is not only because of the danger to the nurse's welfare (in the case of an aggressive or potentially dangerous bird of prey) but also because of the medical aspects of the patient's health.

Assessment before handling

1. Is the bird in respiratory distress, and is the stress of handling therefore going to exacerbate this?
2. Is the bird easily accessible, allowing quick stress-free and safe capture?
3. Does the bird require medication via the oral or injectable route, or can it be medicated via nebulization or food or drinking water?
4. Does the bird require an in-depth physical examination at close quarters, or is cage observation enough?

It is not always necessary to restrain the bird. It is important to remember that many avian patients are highly stressed individuals, so any restraint that is performed should involve minimal periods of handling and capture.

Initial approach

The majority of avian patients seen in practice (with the obvious exception of the owl family) are diurnal (that is active during the daylight hours) and so reduced or dimmed lighting in general has an extremely calming effect. This can be used to the veterinary nurse's advantage when catching a flighty or stressed bird. In the case of Passeriformes (perching birds such as canaries and finches) and Psittaciformes (members of the parrot family, which includes budgerigars and cockatiels as well as the larger parrots), turning down the room lights or drawing the curtains or blinds is enough. For birds of prey there may well be access to the practice's or the bird's own 'hoods'; these are leather caps that slot over the head, leaving the beak free but completely covering the eyes (Figure 10.44). They are used to calm the bird when on the wrist or during handling or transporting.

It is also advisable to keep the noise levels to a minimum when handling avian patients, as the acuity of their hearing is second only to the acuity of their vision. With these two initial approaches, stress and time for capture can be greatly reduced.

Prior to capture, all obstructing items should be removed from the cage or box – e.g. toys, water bowls, food bowls. This helps to avoid self-induced trauma by the bird and reduces the time needed to capture the patient. Once these initial arrangements have been made, the avian patient can be approached.

Birds of prey

There are two main categories of birds of prey commonly seen in practice: Falconiformes (includes falcons, hawks and eagles) and Strigiformes (the owl family). Falconiformes are mainly diurnal (daylight active) and they make up the most commonly seen group of birds of prey in practice. Strigiformes are generally nocturnal (active during the hours of darkness) and so use of hoods and darkening the room will not quieten these birds. However, they generally tend to be relatively docile.

Several pieces of specific handling equipment are often used for birds of prey. Hoods (Figure 10.44) are used to calm many falcons and hawks, and many of these birds will also

have **jesses** on their legs. These are the leather straps attached to their 'ankles' (lower tarsometatarsal area) and they allow the falcon to be restrained whilst on the owner's fist.

Leather gauntlets (Figure 10.44) should be worn by all handlers for all birds of prey, as their talons and the power of grasp of each foot can be extremely strong. The feet of birds of prey represent the major danger to the handler and not the beak. It is important to note that when the bird of prey is positioned on the gauntleted hand, the wrist of this hand (traditionally the left hand in European falconers) is kept above the height of the elbow. If not, the bird has a tendency to walk up the arm of the handler, with serious and painful results. The type of gauntlet should be either a specific falconer's gauntlet or one of the heavier duty leather pruning gauntlets available from garden centres.

1. Place the gauntleted hand into the cage or box or beside the bird's perch.
2. Grasp the jesses with the thumb and forefinger of the gauntleted hand and encourage the bird to step up on to the glove.
3. Once on the hand, retain hold of the jesses and slip the hood over the bird's head.

The bird of prey may then be safely examined 'on the hand' and is frequently docile enough to allow manipulation of wings and beak and for small injections to be administered or for oral dosing to occur.

If the bird of prey does not have jesses on but is trained to perch on the hand it may well step up on to the gauntlet of its own accord. If not, then you need to reduce the room lighting for Falconiformes. A blue or red light source could also be used, allowing the handler to see the bird but preventing the bird of prey from seeing normally. There are then two possible approaches:

- The bird may be grasped from behind in a thick towel, ensuring that you are aware of where the bird's head is (this is known as **casting** the bird; Figure 10.45). The bird is restrained across the shoulder area with the thumbs pushing forward underneath the beak to extend the head away from the hands. The hood can then be placed over the bird's head and the bird placed on to a gauntleted hand. The majority of birds are happier and struggle less when their feet are actually grasping something, rather than being held in a towel with their feet freely hanging.



10.44 A hood keeps a raptor calm. (Courtesy of J Chitty)



10.45 Casting a Harris' hawk. (Reproduced from *BSAVA Manual of Exotic Pets*, 4th edition)

- Alternatively, the hooded bird may be held from behind with the middle and fourth finger of each hand grasping the leg on the same side and directing the feet away from the handler. This method of holding the legs prevents the raptor from grasping one foot with the other which will cause severe puncturing of the skin, leading to secondary infections known as 'bumblefoot'.

For the majority of raptors, if they are loose in their aviary it is best to catch them at night. Owls should be caught during the day. The use of nets and towels is often required.

Finally, it is important to remember that the majority of birds of prey are regularly flown, so it is vital to preserve the integrity of their flight and tail feathers. Unfortunately, few falconers will thank you for saving their bird's life if they then cannot fly that bird until after the feathers have been replaced at the next moult; moulting usually occurs in the autumn.

Parrots and other cagebirds

Parrots are often trained to step up on to the hand. If the owner does not have the bird already trained to do this, he/she should be encouraged to do so. A tasty treat can be held in front of the bird, with the other hand just in front and above the internal perch. The treat should be at such a distance that the bird must step on to the hand to get the treat. It is important to be aware that nervous birds especially may reach down to the hand, as it is normal for many parrot species to use the beak as a third limb to help balance. The novice handler may mistake this for an attempt to bite and pull away, making matters worse as the bird is now even less sure about stepping on to the hand and may grab at the hand in a desperate attempt to pull itself on to the hand, biting in the process. All of these birds will also benefit from subdued or blue or red light to calm the bird and to allow restraint with minimal fuss.

- In psittacine birds (e.g. African grey parrots, macaws, Amazon parrots and cockatoos) the main weapon is the beak and a powerful bite is possible.
- In passerine birds (e.g. mynah birds, starlings and orioles) the main weapon may again be the beak. Although this is less damaging as a biting weapon, it may still be a sharp stabbing weapon.

Wearing heavy gauntlets is not recommended for restraint of either family group as it will not allow easy judgement of the strength of the handler's grip on the patient. Instead it is better to use dish or bath towels for the larger species and paper towels for the smaller ones as these provide some protection from being bitten without masking the true strength of the grip. The towel technique is also more beneficial than gloves alone because it presents a larger surface area for the bird to try and evade. The bird is then less likely to try and bolt for freedom, whereas a single hand can be a much smaller target and encourages escape attempts. After removal of the bird from its cage (see Figure 10.33), the limbs may then be removed from the towelling one at a time for examination or medication.

WARNING

Birds do not have a diaphragm and so rely solely on the outward movement of their ribcage and keel bone for inspiration. Restriction of this movement with too tight a grip can be fatal.

For smaller cagebirds:

1. A piece of paper towel may be used and then the bird transferred to the hand. Latex gloves may be worn.
2. The neck of the bird should be held between the index and middle fingers (Figure 10.46).
3. The thumb and forefinger can then be used to manipulate legs or wings.
4. The rest of the hand should gently cup the bird's body to resist struggling.
5. Care should be taken not to over-constrain as this could cause physical harm.



10.46 Holding a budgerigar for examination. (Reproduced from *BSAVA Manual of Psittacine Birds, 2nd edition*)

In the case of particularly aggressive parrots that are very difficult to handle, leather gauntlets may be employed. Remember that too strong a grasp around the bird's body can prove fatal.

Young and hand-tame parrots

In the case of hand-reared and very tame young parrots, these may be removed from their containers by scooping them up between the palms of both hands before being placed into a towel-lined cardboard box or shallow dish. They should never be left unattended as they could still jump out of the container and injure themselves; however, this technique may allow sufficient restraint to allow a clinical examination.

For fully feathered immature parrots it may still be necessary to towel restrain the bird to examine the vent, feet and other sensitive areas without the bird biting or flapping its wings and escaping.

Waterfowl

Ducks, geese and swans are often kept in farm situations, but are also kept by smallholders and so may well be brought in for treatment.

Restraint of these species is relatively straightforward but may become hazardous with the larger swan and goose family.

1. The first priority is to concentrate on capturing the head. This can be done manually, by grasping the waterfowl around the upper neck from behind.
2. Make sure that your fingers curl around the neck and under the bill whilst the thumb supports the back of the neck and the potentially weak area of the atlanto-occipital joint. Failing this, a swan or shepherd's crook or other such adapted smooth metal or wooden pole attached hook can be used to catch the neck – again held under the bill.

- Next, it is essential that the often powerful wings are controlled before the bird has a chance to damage itself or you. This can be most easily achieved by using a towel, thrown or draped over the avian patient's back and loosely wrapped under the sternum. Some practices may have access to more specialized goose or swan cradle bags, which wrap around the body, containing the wings but allowing the feet and head and neck to remain free.
- The bird may now be safely carried or restrained by tucking its body (contained within the towel or restraint bag) under one arm and holding this close to the torso. With your other hand, the neck can be loosely held from behind just below the bill.

Toucans and hornbills

Another group of birds increasingly kept in private collections are the toucans and hornbills. These have an extremely impressive beak, with a serrated edge to the upper bill. Provided the head is initially controlled using the towel technique described above for parrots, an elastic band or tape may be applied around the bill, preventing biting. The handler still needs to be careful of stabbing manoeuvres and it may be a good idea to work with a second handler. Otherwise, restraint is the same as for Passeriformes.

Escaped birds

Where a bird is loose in a room or in an aviary flight cage, a number of methods can be applied. Again, darkening the room and reducing its area if possible are both very helpful to calm and confine the bird.

- In the case of larger parrots, throwing a heavy bath towel over the bird can confine them for long enough to allow the handler to restrain the head from behind and then wrap the patient in the towel.
- For very small birds, the investment in a fine aviary or butterfly net (preferably made of dark very fine mesh) is extremely useful to catch the bird safely, either in mid-flight or against the side of the cage or room. Larger nets are available from specialist retailers for catching the larger species of birds.

Handling and restraint of reptiles

Reptiles tend to be less easily stressed than birds and so restraint of the debilitated animal may be performed according to the degree of risk. It is still worthwhile considering one or two aspects that may make restraint dangerous to animal and veterinary nurse alike.

Assessment before handling

1. Is the patient in respiratory distress?

Examples include pneumonic cases, where mouth breathing and excessive oral mucus may be present and where excessive manual manipulation can exacerbate the condition.

2. Is the species of reptile a fragile one?

The small day geckos (*Phelsuma* spp.) for example are extremely delicate and very prone to shedding their tails when handled. Similarly, some species such as green iguanas (*Iguana iguana*) are prone to conditions such as metabolic bone disease whereby their skeleton becomes fragile and spontaneous fractures are common.

3. Is the species an aggressive one?

Some are naturally so, for example, alligator snapping turtles (*Macrolemys temminckii*), Tokay geckos (*Gekko gecko*), and rock pythons (*Python sebae*).

4. Does the reptile patient require medication/physical examination?

In these cases, restraint is essential.

Reptiles are ectothermic and so rely on their environmental temperature to maintain their body temperature. Handling periods should therefore be minimized as much as possible to prevent undue cooling of the reptile. Most reptiles commonly seen in veterinary practices require an optimum temperature range of 22–32°C.

WARNING

It should be borne in mind that many species of reptile have a bacterial flora in their digestive systems that frequently includes *Salmonella* spp. Personal hygiene is therefore very important when handling these patients, to prevent zoonotic diseases. Disposable gloves may be worn. Hands must always be washed thoroughly after handling.

Chelonians

This group includes all land tortoises, terrapins and aquatic turtles. Size differences in this order are not as great as for the other two reptile families, but it is still possible to see chelonians varying from the small Egyptian tortoises (*Testudo kleinmanni*) weighing a few hundred grams all the way up to adult leopard tortoises (*Geochelone pardalis*) at 40 kg, and the Galapagos tortoises, which can weigh several hundred kilograms. The majority of chelonians are harmless, although surprisingly strong. The exceptions include the snapping turtle (*Chelydra serpentina*) and the alligator snapping turtle (*Macrochelys temminckii*), both of which can give a serious bite. Most of the soft-shelled terrapins have mobile necks and can also bite; even red-eared terrapins (*Trachemys scripta elegans*) may give a nasty nip.

For the mild tempered chelonians such as the Mediterranean *Testudo* species, the tortoise may be held with both hands, one on either side of the main part of the shell behind the front legs (Figure 10.47a). For examination, to keep the tortoise still it may be placed on top of a cylinder or stack of tins. This ensures that the legs are raised clear of the table and the tortoise is balancing on the centre of the underside of the shell (plastron).

For aggressive species it is essential that the shell is held on both sides behind and above the rear legs to avoid being bitten (Figure 10.47b). In order to examine the head region in these species it is necessary to chemically restrain them.

For the soft-shelled and aquatic species, soft cloths and latex gloves (non-powdered) should be used in order not to mark the shell.



10.47 Handling chelonians. **(a)** Lifting a docile species. **(b)** Handling an aggressive species by grasping the caudal part of the carapace. (Reproduced from *BSAVA Manual of Reptiles, 2nd edition*)

Lizards

Lizards come in many different shapes and sizes from the 1.2 m long adult green iguana to the 10–12 cm long green anole (*Anolis carolinensis*). They all have roughly the same structural format, with four limbs (although these may become vestigial in the case of the slowworm for example) and a tail. The potential danger to the veterinary nurse includes their claws and teeth, and in some species such as iguanas, their tails, which can lash out in a whip-like fashion.

Geckos other than Tokay geckos are generally docile, as are lizards such as bearded dragons (*Pogona* spp.). Iguanas may be extremely aggressive, particularly sexually mature males. They may also be more aggressive towards female owners and handlers as they are sensitive to human, as well as reptile, pheromones.

Restraint

Restraint is best performed by grasping the pectoral girdle with one hand from the dorsal aspect, so controlling one forelimb with forefinger and thumb and controlling the other forelimb between middle and fourth finger. The other hand is used to grasp the pelvic girdle from the dorsal aspect (Figure 10.48), controlling one limb with the thumb and forefinger, and the other limb between middle and fourth finger. The lizard may then be held in a vertical manner with the head uppermost and the tail out of harm's way underneath the handler's arm. When holding a lizard in this manner, the handler should allow some flexibility as the lizard may wriggle, and if the restraint is overly rigid the spine can be damaged. It is then possible to present the head and feet of the lizard away from the handler to avoid injury.



10.48 Holding the forelimbs and hindlimbs against the thorax and tailbase, respectively, restrains medium to large lizards such as this iguana. (Courtesy of S Redrobe)

Some of the more aggressive iguanas may need to be pinned down, prior to this method of handling. Here, as with avian patients, the use of a thick towel to control the tail and claws is often very useful. In some instances gauntlets are necessary for particularly aggressive large lizards, and for those which may have a poisonous bite, such as the Gila monster (*Heloderma suspectum*) and the beaded lizard (*H. horribilis*). It is important not to use too much force when restraining the lizard, as those with skeletal problems such as metabolic bone disease, may be seriously injured. In addition, lizards, like other reptiles, do not have a diaphragm and so over-zealous restraint will lead to the digestive system pushing on to the lungs and compromising respiration.

Geckos can be extremely fragile and the day geckos for example are best examined in a clear plastic container rather than physically restraining them. Other gecko species have skin that is easily damaged and so latex gloves and soft cloths should be used and the gecko cupped in the hand rather than restraining it physically.

Small lizards may have their heads controlled between the index finger and thumb to prevent biting.

WARNING

It is important that lizards are never restrained by their tails. Many will shed their tails at this time, but not all of them will regrow (show autotomy). Green iguanas, for example, will only regrow their tails as juveniles (under 2.5–3 years of age); once they are older than this, they will be left tail-less.

Vago-vagal reflex

There is a procedure that may be used to place members of the lizard family into a trance-like state. It involves closing the eyelids and placing firm but gentle digital pressure on both eyeballs. This stimulates the parasympathetic autonomic nervous system, which results in a reduction in heart rate, blood pressure and respiration rate (the vago-vagal reflex). To maintain pressure on the eyeballs, a cotton-wool ball may be placed over each closed eye and a bandage wrapped around the head, holding these in place. Provided there are no loud noises or environmental stimuli, after 1–2 minutes the lizard may be placed on its side, front, back, etc., allowing radiography to be performed without using physical or chemical restraint. Loud noises or physical stimulation, however, will immediately bring the lizard back to its normal wakeful state.

The 'trancing' of rabbits (see above) has recently been reviewed on welfare grounds, based upon recent scientific research. Such scientific evidence is not currently available for

lizards. It is not yet known whether the physiological response of the lizard differs from that of a tranced rabbit or if the same welfare concerns arise. The procedure in lizards should therefore currently be viewed with an open mind.

Snakes

There is a wide range of sizes, from the enormous anacondas (*Eunectes murinus*) and Burmese pythons (*Python molurus bivittatus*) (Figure 10.49), which may achieve lengths of up to 10 m or more, down to the thread snake family (*Leptotyphlid*), which may be a few tens of centimetres long. They are all characterized by their elongated form with an absence of limbs. The potential danger to the veterinary nurse is from the teeth (and in the case of the more poisonous species, such as the viper family, the fang teeth) or, in the case of the constrictor and python family, the ability to asphyxiate the prey by winding themselves around the victim's chest or neck. With this in mind, the following restraint techniques may be employed.



10.49 Carrying a large snake requires support from more than one handler. (Reproduced from *BSAVA Manual of Reptiles, 2nd edition*)

Non-venomous snakes

Non-venomous snakes can be restrained initially by controlling the head. This is done by placing the thumb over the occiput and curling the fingers under the chin. Reptiles, like birds, have only one occipital condyle and so the importance of stabilizing the atlanto-occipital joint cannot be overstated. It is also important to support the rest of the snake's body, so that not all of the weight of the snake is suspended from the head. With smaller species, this is best achieved by allowing the snake to coil around the handler's arm, so that it is supporting itself.

In the larger species (those longer than 3 m) it is necessary to support the body length at regular intervals (see Figure 10.49). Indeed, it is vital to adopt a safe operating practice with the larger constricting species of snake. For this reason a 'buddy system', as with scuba diving, should be operated whereby any snake longer than 2.5–3 m in length should only be handled by two or more people. This is to ensure that if the snake were to enwrap the handler, the 'buddy' could disentangle them by unwinding from the tail end first. Above all, it is important not to grip the snake too hard as this will cause bruising and the release of myoglobin from muscle cells that will lodge in the kidneys, causing damage to the filtration membranes.

Venomous and aggressive snakes

Venomous snakes (such as vipers and rattlesnakes) and very aggressive species (such as the green anaconda (*Eunectes*

murinus), reticulated python (*Python reticulatus*) and rock python (*P. sebae*) may be restrained initially using snake hooks. These are 0.5–0.75 m steel rods with a blunt shepherd's hook at one end. They are used to loop under the body of a snake, to move it at arm's length into a container. The hook may also be used to trap the head flat to the floor before grasping it with the hand. Once the head is controlled safely the snake is rendered harmless – unless it is a member of the spitting cobra family. Fortunately it is rare to come across these in general practice, but staff who do handle them must wear plastic goggles or a plastic face visor as they may spit poison into the handler's eyes and mucous membranes, causing blindness and paralysis.

Handling and restraint of amphibians

Examination of the amphibian patient should be performed at the species' optimum body temperature. A rough guide is between 21 and 24°C, which is lower than the more usual 22–32°C reptile housing conditions.

The examination table should be covered with paper towels (unbleached) soaked in dechlorinated, preferably purified, water. Additional purified water should be on standby to be applied to the amphibian patient to prevent dehydration during the examination.

Initially it is useful not to restrain the patient until the extent of any problem is assessed, as many have severe skin lesions that are extremely fragile.

Once an initial assessment has been made, the patient may be restrained manually. It is advisable to use a pair of non-powdered hypoallergenic latex gloves. This minimizes irritation to the amphibian's skin caused by the normally acidic human skin, and prevents irritation caused by the powder in many prepacked latex gloves. The wearing of gloves is also essential for handling members of the toad family or the arrow tree frogs, which can secrete irritant or even potentially deadly toxins from their skin. These toxins can be absorbed through unprotected human skin. It may be necessary to wear goggles when handling some species of toad. The giant toad (*Bufo marinus*) can squirt a toxin from its parotid glands over a distance of several feet.

When handling the amphibian patient, the method of restraint will obviously depend on the animal's body shape.

- The elongated form of **salamanders** and **newts** will require similar restraint to that of a lizard: one hand grasps the pectoral girdle from the dorsal aspect, with the index finger and thumb encircling one forelimb and the second and third fingers the other, while the opposite hand grasps the pelvic girdle, again from the dorsal aspect in a similar manner. Some salamanders will shed their tails if roughly handled and so care should be taken with these species.
- **Large anurans** (members of the frog and toad family) can be restrained by cupping one hand around the pectoral girdle immediately behind the front limbs, with the other hand positioned beneath the hindlimbs (Figure 10.50). Care should be taken with some species that have poison glands in their skin as mentioned above. Care should also be taken with species such as the Argentinian horned frog (*Ceratophrys ornata*) as these can bite.



10.50 Handling a frog. (Courtesy of Gidona Goodman)

- **Aquatic urodeles** should be examined only in water, as removal from the water results in skin damage. Some of the larger urodeles, such as the hellbender species (*Cryptobranchus* spp.), can also inflict unpleasant bite wounds on handlers.

Smaller species and aquatic species may be best examined in small plastic or glass jars.

Handling and restraint of invertebrates

The species involved will naturally determine the methods by which the patient can be safely, for handler and invertebrate alike, restrained.

Many invertebrates present no direct threat to the handler. Examples include giant land snails, stick insects and cockroaches. These may be gently picked up and cupped in the hand, or allowed to walk on to a towel or similar non-slip surface.

Other species, such as those in the **mygalomorph spider family**, may present multiple hazards. These may flick setae (the small hairs that cover their abdomens) at the handler if stressed or if they feel threatened. These setae are highly irritant on the skin and are particularly dangerous if they come into contact with the conjunctiva. In addition, many of these spiders have a nasty bite. The bites are rarely fatal but still cause pain and potential harm, similar to the pain associated with a bee or wasp sting. These species should be transferred into a Perspex, glass or plastic container (Figure 10.51), and only ever handled with latex gloves. If it is necessary to pick up such a spider, it may be either cupped in paired hands or grasped with atraumatic forceps or fingers, immediately behind the cephalothorax, around its 'waist'. Protective goggles should be worn if the spider is to be removed from its container.



10.51 Placing a spider in a transparent container allows it to be examined easily. (Courtesy of E Morgan)

Scorpions present a similar problem, with the tail sting being the most obvious danger. The majority of scorpions kept in captivity such as the imperial scorpion, are not seriously dangerous, although the sting may be likened to a wasp or bee sting. To restrain these species safely, they may be transferred into a Perspex, plastic or glass container, or alternatively a sheet of clear plastic may be gently but firmly laid over the top of the scorpion to confine it for examination or to allow a better grasp. They may also be lifted gently by the tip of the tail using atraumatic forceps, with a sheet of card or plastic supporting the body from underneath.

Aquatic invertebrates should be examined and moved in water, using either their own tank or a clean plastic, Perspex or glass container.

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Useful websites

<http://www.defra.gov.uk/wildlife-pets/pets/travel/pets/regulation/eu-reg.htm>

Self-assessment questions



1. What are the four main aims of the veterinary nurse when restraining an animal?
2. What are the signs that could indicate that a dog or cat may be fearful and/or potentially aggressive?
3. What actions should and should not be taken when initially approaching and handling a dog or cat?
4. What are the important DOs and DON'Ts when a dog growls?
5. How is a tape muzzle applied and when should one be used?
6. What are the typical signs displayed by an aggressive horse?
7. Which position should a horse not be approached from?
8. Which direction should you face to pick up a horse's foot?
9. How often should a horse's feet be checked for problems?
10. What is the maximum length of time for a twitch to be in place on a horse?
11. What is the maximum length of time that a horse should travel without water/food?
12. How is it best to handle an aggressive male rabbit?
13. Which species of rodent should not be routinely grasped by the scruff of the neck to restrain them?
14. What type of bird will not be quietened by moving it into a darkened room?
15. When restraining a bird, what should the handler be careful not to do too firmly?
16. What important zoonotic bacteria may be carried by reptiles?
17. What defence mechanism might mygalomorph spiders employ to avoid being handled?