

**Restraint Techniques for Animals**

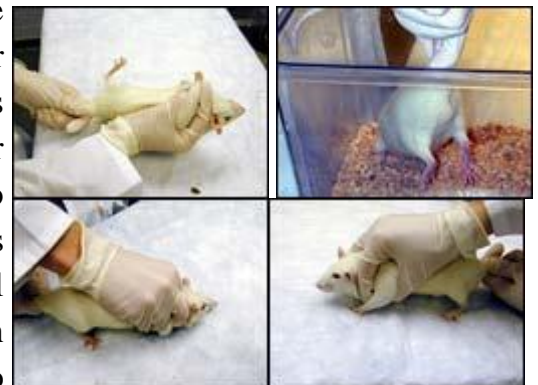
Proper restraint and handling techniques are essential for reducing stress to laboratory animals and the handler. **Animals become much easier to handle if they are trained and adapted to handling.** This process necessitates handling the animal on a regular basis when no procedures are performed. Most rodents will attempt to bite when handled. Since rodent bites are painful and can become infected, care and proper technique in handling rodents is essential. **Restraint devices or chemical restraint should be considered for prolonged or potentially painful procedures.**

**Mice**

Mice can be safely restrained by grasping firmly at the base of the tail. This form of restraint is suitable for moving the mouse over a short distance, animal identification and weighing. For greater control such as during examination, or injections, place the mouse on a surface it can hold. A suitable surface is a wire cage top or a towel. Apply a slight tension to the base of the tail so the mouse grasps onto the surface. Gently but firmly place your free hand over the shoulders and quickly grasp the scruff of the neck close to the base of the skull between the thumb and forefinger. Restrain the tail by your little finger.

**Rats**

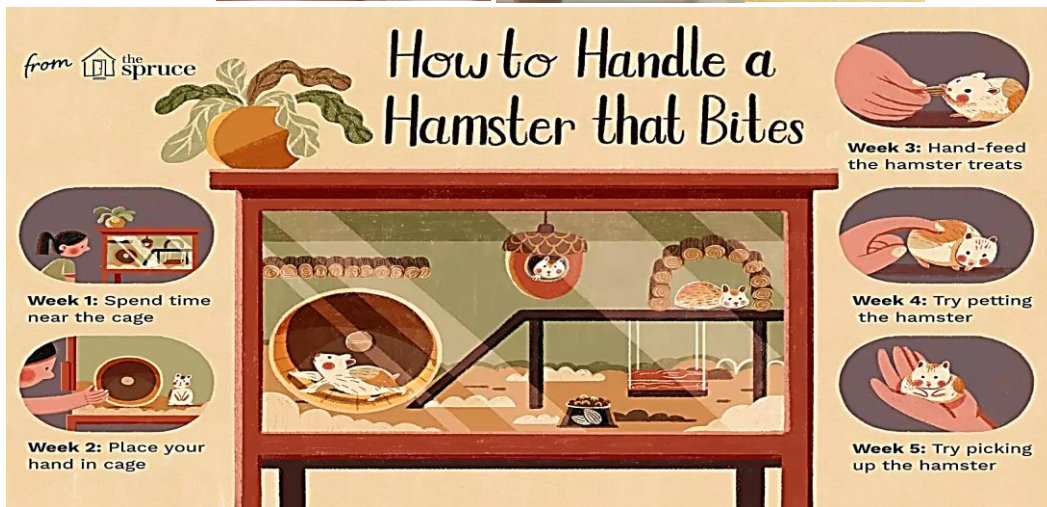
Rats can be restrained by grasping firmly at the base of the tail. Holding the tail distal to the base can result in a degloving (stripping off the skin) injury. This restraint is suitable for moving the rat over a short distance or a cursory examination. To calm a rat place, it on your lab coat. Providing a place to hide such as under a towel will also help to calm the rat. For a firmer restraint grasp the whole body, with the index and middle fingers along the sides of the head and the thumb and remaining fingers under the axilla. Alternatively, circle your thumb and index fingers under the jaw to control the head while the rest of your finger support the chest behind the forelegs. Use your other hand to support the lower body and hold the tail. Both methods restrict head movement while allowing access to the facial area. Applying too much pressure to the head or chest can result in struggling and injury to the animal. It may also increase the tendency to bite. Some rat strains are more aggressive than others. If your rats are difficult to handle you may want to wear loose cotton work glove. Remember that the rat may still be able to bite through the glove.



Do not attempt to grasp rats at the nape of the neck. Unlike mice and hamsters, rats object strongly to being restrained by the scruff. **Rats can inflict painful bites with their incisors.**

## Hamsters

Hamsters bite readily and painfully. They should be handled as quietly as possible to minimize arousal. For cage transfer or for weighing, the animal can be carried in a small cup or beaker. For firmer restraint the hamster may be grasped firmly by the loose skin of its back, or handled in a similar manner to a rat. Gloves also work when handling hamsters. **Do not lift hamster more than 30 cm from the ground due to injuries if it falls from your hand. Do not restrained by the scruff.**



### Tips

- ✓ Wash your hands before handling your hamster so your fingers don't smell like food.
- ✓ While wearing thick gloves can offer protection, do so only temporarily as hamsters are best tamed when they become familiar with your scent, which they can't detect well through the gloves.
- ✓ If the hamster is clamped onto your hand, don't shake your hand to dislodge it. Try to gently put it back down or use your other hand to pry it off.
- ✓ Never scold, yell, or hit the hamster. Try to stay calm and remember your hamster is biting out of fear, not aggression.

### Guinea pigs

Guinea pigs are docile and relatively easy to restrain. They rarely bite, but are very easily frightened and will vocalize and squirm to avoid restraint. Guinea pigs are large and compact with very little loose skin. They can be restrained by grasping the whole body, with the thumb and forefinger around the neck. The other hand should be placed under the hindquarters to support the body. Guinea pigs can also be restrained by holding them against your body or wrapping in a towel



### Rabbits

Rabbits are quiet, nervous and tend to panic easily. Some aggressive rabbits will bite. They can inflict painful scratches with their hind legs. It is a good idea to assess the attitude of the rabbit before opening the cage door. Rabbits are highly susceptible to lumbar spinal luxation, resulting in paralysis. Hence, extreme care must be taken when handling rabbits to avoid sudden movement. It is necessary to support the animal's hindquarters at all times.

One way of lifting a rabbit is by grasping the skin over the shoulder with one hand and gently lifting it with the other arm cradling the body, the head nestled in the crook of your arm. Another is to hold it upright by the scruff of the neck with one hand while the other hand supports its hindquarters. A towel wrapped around the body can also be used for restraint. The towel may also be draped over the face. **Do not lift a rabbit by its ears.**

For longer restraint for blood collection or fluid administration, an approved restraint box or cat bag may be used or chemical restraint may be indicated.



### Cats

Cats are often cooperative enough to be restrained on a table by the loose skin at the back of the neck and hips, or with one hand restraining the body and the other hand restraining the head. A fractious cat may have to be wrapped in a heavy towel with any needed limb carefully withdrawn for treatment. Cat bags are a very efficient form of cat restraint. Ketamine is often an effective tranquilizer to calm an aggressive cat for treatment or bleeding. Cats can also be 'stretched' by holding the scruff with one hand then gently holding and extending both hind limbs.



### Dogs

Dogs in the laboratory are accustomed to people and are usually easy to work with. A slip lead is highly recommended for working with dogs. A dog should always be carried with proper support. The dog can be restrained in lateral recumbency or in a sitting position for injections and minor procedures. For venipuncture, the handler can restrain the dog on a table with one arm around its neck. The other hand is then free to restrain the body if necessary or to occlude the vein for the person with the syringe. A shy or fearful dog may need extra time spent with it to make it more comfortable. Moving slowly and speaking quietly will help to prevent alarming the animal. A commercial muzzle may be purchased, or a single loop in a long piece of bandage can be passed over the dog's muzzle and tightened. It is then tied again under the mandible and the ends are brought behind the dog's ears and tied, preventing the dog from removing it. A highly aggressive dog may have to be tranquilized with acepromazine or handled with a capture stick. Consult

veterinary staff for assistance. Pills are easily administered to most dogs if the proper technique is used.



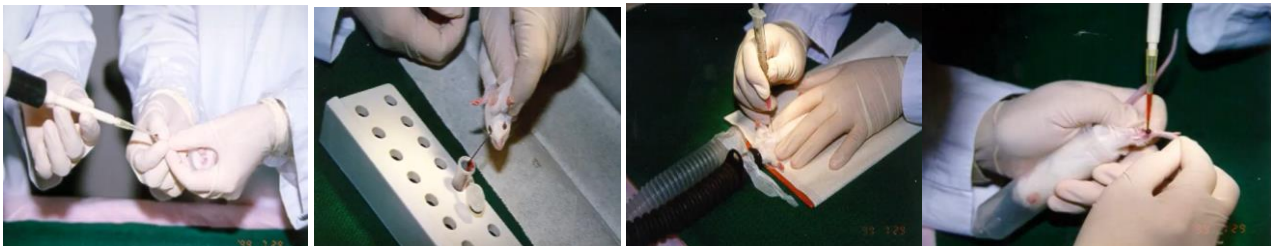
### Non-human primates

Nonhuman primates no matter how small can be dangerous. Injections can be given to a confined animal with the help of a squeeze cage. Chemical immobilization with ketamine is effective. Only trained and experienced personnel should attempt physical restraint of a conscious animal. Always ensure you have a backup person before attempting this procedure. Prior to handling nonhuman primates (Monkeys) ensure that you are wearing appropriate personal protective equipment. Eye and mucus membrane protection and protective clothing are recommended and are required if there is a risk of aerosolized pathogens. Familiarize yourself with procedures to follow in case of an exposure, bite or scratch and the location of the bite kits.



### Blood collection from mice:

- ❖ From tail: Approximately blood collection is **100  $\mu$ l = 0.1 ml** (small amount of blood).
- ❖ From Orbital sinus: Approximately blood collection is **500  $\mu$ l = 0.5 ml** (apply I/p general anesthetic before blood withdraw (يجب تخدير الحيوان قبل سحب الدم)).
- ❖ From cardiac puncture (up to **1000  $\mu$ l = 1 ml** (Must be applied under general anesthesia)
- ❖ From Saphenous vein (multiple samples are taken, can be performed on Rats, Hamsters, gerbils and guinea- pigs)



- ✓ Intraperitoneal injection (I/P): for drug administration to rodents.
- ✓ Subcutaneous injection (S/b): The most common immunology studies' method (skin test)
- ✓ Oral feeding: Gastric intubation (feeding amount limitation is up to 1% body weight (BW))

