

# CARE OF GERBILS



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The Mongolian gerbil (*Meriones unguiculatus*) is a small rodent native to the desert regions of Mongolia and northeastern China. Gerbils are burrowing, social animals which are active both day and night. Their burrows are composed of elaborate tunnels with multiple entrances, nesting rooms, and food compartments. The native color variety is agouti, mixed brown, with dark pigmented skin, light brown to white ventrum (chest and abdomen), and darker dorsal (back) coat. Other color varieties that exist include black, white, and cinnamon. Color combinations of black or brown with a white band across the chest area are also common. Gerbils have a marking scent gland which appears as a tan colored hairless area in the middle of the abdomen.

The gerbil is a curious, friendly and nearly odorless rodent which makes it a very popular pet. They have adapted well to captivity and tend to be relatively free of naturally occurring infectious diseases. These rodents rarely bite or fight, are easy to keep clean and care for, and are relatively easy to handle. These qualities make the gerbil an ideal pet as well as laboratory rodent.

## DIET

As with any pet, good quality food and clean, fresh water must be provided at all times. In the wild, these animals feed on leaves, seeds, grains, and roots. Current recommendations for feeding in captivity are pelleted rodent ration containing 20%-22% protein. These rations are typically processed as dry blocks or pellets designed for rodents. Seed diets are also “formulated” and sold for gerbils, but these diets should only supplement the basic rodent pellet. Gerbils prefer sunflower seed- based diets to pellets, but these seeds are low in calcium and high in fat and cholesterol. When fed alone, seed diets often lead to obesity and potential nutritional deficiencies. Other supplements to the diet may include sugarless breakfast cereals, whole wheat breads, pasta, dog biscuits, cheese, hard-boiled eggs, fresh fruits and vegetables; all fed in moderation. New foods should be introduced gradually to prevent diarrhea and all uneaten fresh foods should be removed from the cage before becoming moldy. Gerbils eat approximately 5 to 8 grams of food daily; eating both day and night. Food can be spread around the cage for the gerbil to forage from or can be placed in a sturdy metal or ceramic bowl. Gerbils typically bury their food with bedding material, so the bowl should be cleaned daily of any bedding or feces material prior to feeding.

In the wild gerbils require little water to drink and derive most of their fluid from the foods they ingest, however, **caged gerbils must be provided with a continuous source of clean water.** Inadequate water consumption can lead to dehydration, infertility, lower body weight, and eventual death. Water is easily provided in water bottles equipped with sipper tubes. Bowls are not useful for holding water because of the gerbil’s natural instinct to bury it in bedding. The bottle method also helps keep the water free from contamination, but plastic water bottles should be protected with metal holder to prevent chewing damage to the bottle. If a gerbil chews a hole through the water bottle the bottle should be replaced immediately and the bedding underneath the bottle should be replaced to prevent mold growth. Always make sure that the tubes are positioned low enough to allow the pet easy access. The average adult gerbil drinks approximately 4 to 10 ml of water daily, and although this volume is a fraction of the total bottle volume, fresh water should be provided daily, not just when the bottle empties.

## HANDLING

The gerbil's natural curiosity and friendly disposition makes it fairly easy to handle. Most gerbils will approach a hand introduced into their cage and can be easily scooped into the palm of the hand. **A gerbil should never be grasped by the tail**, as this could result in sloughing of the skin and injury to the tail. Gerbils not accustomed to being handled may jump or run, but are rarely aggressive. A cup or small bowl can be used to scoop up a nervous gerbil, which can then be transferred to a hand or another container. Once picked up, the gerbil can be restrained by one hand with the over-the-back- grip. This is done by scruffing the loose skin over the back of the neck between the thumb and index finger, while the tail is held gently between the fourth and fifth fingers. The gerbil may struggle while being held or manipulated, so be careful not to let it escape.

## HOUSING

### Caging

Several types of caging are available which provide suitable housing for gerbils. Many of these units come equipped with cage "furniture", such as exercise wheels, tunnels, and nest boxes. Such accessories, as well as sufficient litter depth to burrow in, are considered necessary for the gerbil's psychological wellbeing. A gerbil's habitat should be cleaned at least once or twice weekly; smaller cages should be cleaned more frequently than larger cages. There are several types of cages typically used, all of which are readily available at most pet stores. With all types of caging it is important to make sure the cage is secure to prevent escapes and at least one side of the enclosure is open for circulation.

Wire cages with solid bottoms provide good ventilation, but can be messy and drafty. The cages themselves are typically easy to take apart and clean. Bedding can also be kicked over the side between the wires and cause extra mess to clean up. Gerbils may chew on the wire sides and could damage their teeth. Caging with wire bottoms should be avoided because feet and tails can get stuck in the floor and injury could result.

There are many colorful plastic commercial cages available, many of which are equipped with tubes and tunnels. This can give the gerbil plenty of exercise, but many of these cages are too small for a gerbil to live in comfortably. Plastic tubes have poor ventilation and can be difficult to clean on a regular basis. Gerbils will chew and possibly destroy any plastic edges they have access to, resulting in escapes, so make sure a cage of this type is secured well.

Glass aquariums keep bedding from being pushed out of the cage and can allow the gerbil to burrow, however, beware that glass containers drastically reduce ventilation and can lead to problems with temperature and humidity regulation. Aquariums are typically easy to clean, but can be heavy and awkward to lift.

Two adult gerbils require a space that is at least 24 inches long, 10 inches wide and 10 inches high. A breeding pair of gerbils will require a much larger area. Up to two gerbils can be housed together in a 10 gallon aquarium; however, a larger cage is preferred if possible. Optimal temperature range for gerbils is between 65° and 85° F and the optimal humidity range is between 30% and 50%. Twelve hour light cycles are preferred, with gerbils being active both day and night.

Gerbils are social animals which tend to cohabitate well together. The typical social interactions consist of grooming, wrestling and communal sleeping. Small groups of males or females can live together peacefully if introduced at an early age, especially if they are from the same litter. However, gerbils may become aggressive to intruders, and they may fight when crowded or mixed as adults. Breeding pairs are kept together, with the male even helping to raise the young.

### Bedding Materials

Gerbils thrive in solid bottom cages with deep bedding and ample nesting material. Bedding must be clean, non-toxic, absorbent, and relatively dust free. Aspen shavings and wood pulp or paper based beddings (such as Carefresh), are preferred beddings. Be sure any bedding used is free of mold, mildew, or other

contaminants before placing in the cage. **Do not use cedar, pine, or chlorophyll impregnated shavings** since they have been associated with respiratory and liver disease. Provide at least two inches of bedding in the cage to allow normal burrowing behavior. Shredded paper, paper towels, tissue paper, and toilet paper spread around the cage all make excellent nesting materials for gerbils. Commercial cotton “fluff” material should be avoided because, if ingested by a gerbil, it can cause gastrointestinal impactions.

## **Cage Accessories and Toys**

Gerbils need activities to keep them occupied during both the day and night. Toys and safe activities can be placed in the cage and give gerbils mental and physical stimulation needed to live a happy healthy life.

Gerbils in the wild spend a large portion of their time running and seeking food. An exercise wheel can be provided to give caged gerbils an outlet for the desire to run. Care must be taken to avoid open wire wheels, to keep legs and tails from becoming trapped and injured. Masking tape can be applied to the outside of the wheel to make it “solid” and bedding can be sprinkled on the tape to decrease stickiness. Gerbils will often chew the tape so it will need to be replaced regularly. An alternative to open wire wheels are solid wheels, which are often made of plastic. Some gerbils will chew on and destroy solid wheels made of even the sturdiest plastic, so a wheel of this type may need to be replaced often to avoid injury to the gerbil when using the wheel.

Pet gerbils may enjoy plastic exercise balls in addition to a wheel. This can also provide some interaction between owner and pet. A gerbil in an exercise ball must be supervised by an adult at all times and doors and stairs should be blocked off from the gerbil’s access.

Gerbil teeth grow constantly and need to be worn down through gnawing. Commercially produced toys made of wood are excellent for gerbils to wear their teeth down on; some toys come in the form of houses or boxes and provide a place for the gerbil to nest in and hide when feeling threatened. Cardboard also provides rodents with a substance to chew on and use as nesting material. Cardboard toilet paper tubes, paper towel tubes, and boxes are a greatly appreciated treat for a gerbil to play with. Small treats or a portion of the regular diet can be hidden in cardboard tubes or boxes with shredded paper for extra enrichment.

A playpen or a maze may be constructed for out-of-cage time and can be an excellent way to interact with a gerbil. Playpens can be constructed or purchased, and structures to climb on can be placed inside. Objects to chew on and a clean water supply should be provided as well. Mazes can be constructed out of cardboard tubes, boxes, or other materials and can be used to hide treats of food items for the gerbil to find. A gerbil should always be supervised while out of the cage because some gerbils can escape from mazes and climb out of playpens, even those that are taller than the gerbil.

## **BREEDING**

Gerbils should be paired by the time they reach sexual maturity, at 7 to 8 weeks of age. Life long, monogamous pairs usually form. The first mating typically occurs at about 10 to 12 weeks of age. Re-pairing a gerbil can be difficult after the loss of, or separation from a mate. Harem breeding, where there are two females to one male has also been successful, but may lead to some fighting. The male gerbil participates in the care of the young, and if a male is removed from the cage for an extended period of time after the birth, fighting may ensue when reintroduced to the female only a few weeks later.

The gestation period of non-lactating gerbils is 24 to 26 days on average. A fertile postpartum estrus may result in pregnancy, with a gestation length of over 30 days when the female is nursing young. Litter size averages 4 to 6 pups, which are born blind, naked, and helpless. Ears open at 3 to 7 days, hair coat develops at 7 to 10 days, incisors erupt at 12 to 14 days, and eyes open at 14 to 20 days after birth. Weaning occurs by the age of 21 days. The estrus cycle lasts 4 to 6 days with spontaneous ovulation. Monogamous pairs may produce a new litter every 30 to 40 days, for a total of 6 or 7 litters during their reproductive lives. The female gerbil is reproductively active until about 18 months of age. Males continue to be fertile until at least 24 months of age.

Young gerbils are rarely cannibalized, unlike in some other rodent species. Some factors which may lead to abandonment include small litters, excessive handling of young, lack of nesting material, and lack of an area for concealment of the nest. If a mother gerbil abandons a nest, fostering may be possible if the orphans

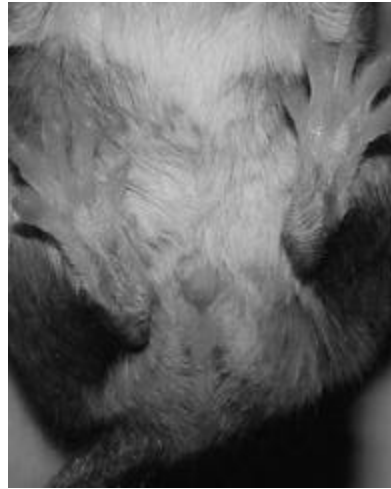
and host litters were born within a few days of each other. Hand feeding orphaned neonatal rodents is difficult and often unrewarding.

## **SEXING**

Sexing is possible beginning at four weeks of age. At this time scrotal sacs are visible in males. The distance between urogenital openings is wider in males than in females. In the first picture below the ventral scent gland can be seen on the male's abdomen. In the female the gland is hidden below the gerbil's fur.



Male



Female

## **BEHAVIOR**

### **Scent marking**

The ventral marking gland is a hairless, tan colored patch on the gerbil's abdomen. It is more prominent in males than in females and is used to mark territory. Typically a gerbil will do this by rubbing the belly against the object being marked.

### **Foot Stamping**

Gerbils will occasionally make "thumping" noises by beating their hind legs against the ground. This is done to warn other gerbils of danger, declare territory, or to express sexual excitement.

### **Grooming**

Gerbils do not need to be bathed or brushed; healthy gerbils will groom themselves and their mates to keep their hair coats healthy. Bathing a gerbil can cause it to become cold very easily when wet, and this increases the likeliness that gerbil will become sick.

### **Coprophagy**

Coprophagy is the practice of consuming feces, and this is a normal process in gerbils. Gerbils can obtain valuable nutrients by passing food through the digestive system twice. Animals on well balanced diets may not be seen practicing coprophagia.

## **NON-INFECTIOUS CONDITIONS**

### **Epilepsy**

The gerbil has a genetic tendency to develop epileptiform seizures. This occurs in 20 to 40% of the general pet gerbil population. These seizures may be initiated by fright, handling, or exposure to a new environment. The attacks can be mild (slight shaking) to very severe (violent convulsive body jerking, erratic movements and collapse). The convulsions appear not to have any long term effects. In some instances, however, death may result following very severe seizures, but this is rare. Anticonvulsant therapy is not often used, as it can cause more serious side effects and the seizures themselves. Frequent handling during the first few weeks of life and providing a stable environment with a complete, balanced diet can help suppress the seizures in genetically disposed gerbils.

### **Tail Sloughing**

Improper handling of gerbils can result in the loss of fur from the end of the tail. This occurs when the animal is grasped by the tip of the tail. The skinless tail dies off and sloughs, with the stump usually healing without complications. In some instances, the tail may need to be amputated. To prevent this from occurring, avoid picking your gerbil up by the tail.

### **Nasal Dermatitis (Bald Nose)**

Gerbils commonly develop hair loss on the nose and muzzle with open lesions and crusting. This condition is often attributed to abrasions from coarse bedding or rough surfaces within the cage or environment, but the Harderian gland may also be involved. The Harderian gland is located behind the eye and produces a secretion that empties onto the globe. From the eye, this material is drained into the nose by way of the nasolacrimal duct. This secretion is mixed with saliva and spread over the hair coat during grooming.

Nasal dermatitis tends to affect young mature gerbils most often. It spreads from being a localized nasal hair loss to involving the face, legs, and ventral body surfaces in advanced cases. Cedar shavings used as bedding tend to worsen the condition. In severe cases, secondary bacterial infection may occur. If treated early in the course of the disease with appropriate antibiotics, this condition often resolves; but if not attended to early, the treatment may be unrewarding. Surgical removal of the Harderian gland results in recovery of the condition, but the procedure is rarely performed. A veterinarian may recommend use of sand baths to aid in removing the excessive secretions, thus resulting in partial recovery.

### **Malocclusion**

As with other rodents, the teeth of the gerbil grow constantly throughout life and wear down through chewing. Sometimes the teeth do not align properly and do not wear down correctly when a gerbil uses them. As the teeth get too long they should be clipped by a veterinarian.

### **Fractures**

Trauma, such as a fall or mishandling can cause fractures of the limbs or tail. Treatment is supportive care or light dressings. Severe fractures may need amputation. Prevention is the key to avoiding this condition. Proper handling should be practiced and children should always be supervised with pets. Cages should be kept secured and doors should always be closed to prevent escapes.

## DISEASE CONDITIONS

### Renal Disease

Older gerbils, 2 ½ to 4 years of age, often present with a history of weight loss, loss of muscle mass, increased urination, poor appetite, and lethargy. In addition, an increase in water consumption may be observed. These are all signs consistent with renal disease in geriatric gerbils. Treatment in rodents is supportive care, with emphasis on providing ample fresh, clean water and food at all times to prevent stress that may trigger full renal failure.

### Neoplasia (Cancer or Tumors)

Gerbils have a relatively high incidence of cancer after they reach 2 years of age. The organ most affected is the ovary. Ovarian tumors are common in female gerbils with poor reproductive performance. They may present with early cessation of reproduction, decreased litter size, or distended abdomens. All of these signs may also be present with cystic ovaries as well.

The skin is the second most affected site for tumors in gerbils. Squamous cell carcinomas and melanomas are most frequently encountered. Melanomas have a tendency to develop around the ear, feet, or base of the tail.

The ventral marking scent gland is the third most common site of neoplasia. This gland is located in the mid-abdominal area. It is a hairless, oval, tan colored structure, which tends to be more prominent in males. The gland produces an orange colored secretion which is used to mark territory. Tumors of this gland appear as “abscesses” on the abdomen. Usually the tumor is not malignant, but may have a secondary bacterial infection.

Many other organs may be affected by cancer, but much less often. Where possible, surgical intervention as early as possible is the treatment of choice.

### Tyzzler's Disease

The most commonly reported infectious disease of gerbils is Tyzzler's Disease, which is caused by *Bacillus piliformis*, a gram-negative bacterium that infects living cells. The disease causes a high death rate, especially in young male gerbils. Clinical signs are nonspecific, primarily consisting of ruffled fur, lethargy, hunched posture and poor appetite. Diarrhea may also be present. The disease causes changes in the heart, liver, lymph nodes and digestive tract which can be observed at necropsy. Special stains of tissue samples from deceased rodents can confirm the diagnosis.

Treatment of affected colonies with tetracycline antibiotics in the drinking water may be of some benefit in an epidemic. Supportive care with fluid therapy is often necessary in affected animals.

Prevention is the key to this disease. High level sanitation and minimal stress greatly reduces the occurrence of this disease in colony situations. Tyzzler's disease typically affects gerbils that are stressed by weaning, shipping, and adjusting to new environments. Strict sanitation prior to introduction of new animals is important in preventing outbreaks.

### Conjunctivitis

Conjunctivitis is an infection of the inner surface of the eyelid and the exposed surface of the eyeball and can progress quickly. It can be caused by any irritant that comes in contact with the eye, such as dust or abrasive bedding material. Early signs include crusting or discharge around the eyes and inflammation. A gerbil may rub or scratch at an infected eye, and this can make the problem worse. Treatment usually includes eye ointment or drops several times a day and removal of the irritant that likely caused the problem.

## Parasites

It is possible for gerbils to be infested with internal and external parasites. Signs usually include lesions or blisters on the skin, hair loss, or chronic weight loss. Diagnosis of parasites is done through fecal or skin testing. Parasites are treated with anti-parasitic medication. Fleas and lice are not common in gerbils, but can be obtained through contact with other animals.

### SYMPTOMS TO WATCH FOR

If you see any of the following conditions in your gerbil contact your veterinarian immediately.

- Sudden weight loss or gain
- Hair loss
- Diarrhea or constipation
- Head tilt, loss of balance
- Discharge from the eyes, ears, or nose
- Lumps, masses
- Wounds, blisters, or bleeding
- Breathing difficulties
- Lethargy
- Anorexia
- Abnormal posture
- Collapse, trembling, seizures

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### GERBIL QUICK FACTS

Scientific name: *Meriones unguiculatus*

Life span: 2 to 4 years on average

Environmental Temperature Range: 65° to 85° F

Relative Humidity Range: 30-50%

Breeding Age: 10 to 12 weeks old

Estrous Cycle: 4 to 6 days long

Gestation Period: 24 to 26 days (27 to 48 days with lactation)

Litter Size: 3 to 7 young

Weaning Age: 21 days