

General Information on Hamsters

- The most common type of pet hamster is the Golden or Syrian Hamster (*Mesocricetus auratus*), which came from Syria in the mid-19th century. Other less common breeds of hamster include the Chinese Hamster (*Cricetulus griseus*), and the European or Black-Bellied Hamster (*Cricetus cricetus*).
- A Golden Hamster has an average life span of 18-24 months, and as an adult weighs approximately 120 g and is about 15 cm long. Females tend to be larger than males. Hamsters can be long-haired or short-haired and come in a variety of colours from cream to golden to dark brown.
- Hamsters are naturally omnivorous and nocturnal.
- In 1996, it was estimated that there were 1.9 million pet hamsters in the USA. In 2001, it was estimated that there were less than 900 000.
- In general, hamsters are not a high-risk pet in terms of the potential for zoonotic disease transmission. However, it is still important to be aware of the diseases they can carry and how to keep both a hamster and its owner as healthy and happy as possible.



Obtaining a Hamster

- Hamsters are often bred in large central facilities and transported from there to various distribution centres and pet stores for sale to the public.
- Contact with a large number of other animals, and stress during transportation and while in a pet store, can lead to an increased risk of disease transmission and illness in store-bought hamsters.
- It is important to counsel prospective hamster owners on selection of an animal that appears bright and active, with well kept fur and without any signs of diarrhea or discharge from the eyes, nose or mouth. If there are other hamsters in the same enclosure, it is important to ensure they appear healthy as well.

Hamster Management

Feeding

- In the wild, hamsters eat a variety of fruits, vegetables, seeds and insects. Pet hamsters should be fed a commercial pelleted hamster feed which provides balanced nutrition. Avoid mixed-seed feeds, as a hamster may only eat certain seeds that it likes and burry or hide the rest. Treats such as small pieces of apple, walnuts, raisins and greens should be limited to a maximum of 1/2 teaspoon per day.

Housing:

- In general, hamsters should be **housed individually**. A hamster is likely to fight if introduced to another hamster of either sex. An enclosure approximately 20" x 20" and 6-10" high is adequate for an adult hamster.
- Hamsters are notorious escape artists. They must be kept in a **secure enclosure** that will not only keep the hamster from getting out, but will also prevent wild rodents such as mice from getting in. Wild rodents can transmit several diseases to hamsters, some of which are zoonoses.
- Use an enclosure with at least one open side constructed from wire mesh in order to provide **adequate ventilation**. The use of a fully enclosed hamster cage results in the build up of fumes from urine and feces.
- The bottom of the hamster cage should be solid metal or plastic, with a smooth surface that is **easily cleaned** and disinfected. This should be covered with wood shavings or recycled newspaper for **bedding**. Hamsters also require soft material such as facial tissue to **build a nest** for sleeping. Avoid giving them stringy material with long fibres that can become entangled around the animal's feet or teeth.
- Ensure that the hamster is not kept in a cold or drafty area. Hamsters do not truly hibernate, but they may try to sleep until the environment reaches a more **suitable temperature**.
- Other things a hamster requires are wood chew sticks or an alternate **material to wear down their incisors**, and an **exercise wheel** to permit more physical activity.

If a female hamster is bred (intentionally or accidentally), she will have additional nutritional requirements prior to and after the birth of her offspring. Female hamsters are also apt to cannibalize their young if they are disturbed or stressed. Please refer to an appropriate reference regarding hamster husbandry for additional information.





Handling Hamsters

- Hamsters may bite if startled, awakened abruptly, or handled roughly. Before touching or picking up a hamster, make your presence known (e.g. make a small amount of noise or talk to the hamster) and ensure that it sees you so you do not startle it. Hamsters should only be handled for short periods of time because they can easily become stressed, which may lead to an increased tendency to bite.



- Hamsters may be safely lifted by cupping them in one's hands, but be cautious as the animal can easily bite with this technique. A hamster can also be safely picked up by the scruff of the neck, or in a small container or box by gently pushing the hamster in head first. If the latter technique is used, be very careful that the hamster cannot climb out on its own, as this could result in the hamster falling and injuring itself or getting loose.
- A hamster may be restrained by gently grasping the loose skin over the hamster's back, such that the skin over the chest becomes tighter and thus immobilizes the animal.
- When restraining a hamster, always be aware of the animal's stress level. Do not reduce the force of restraint if the animal appears to relax or become subdued, but try to minimize the duration of any procedure or examination.

Hamster Bites

- All hamsters may bite. All bite wounds should immediately be cleaned vigorously with large volumes of soap and water, and monitored closely for signs of infection. Infection in such cases is usually caused by commensal bacteria from the hamster's mouth or the skin of the person bitten. While very rare, rabies, *Francisella tularensis*, and potentially lymphocytic choriomeningitis virus, can be transmitted by a bite from an infected hamster.
- Medical attention should be sought for any bite over a joint, hand, tendon sheath, prosthesis, implant or genital area, and for any bite to an immunocompromised individual (e.g. HIV/AIDS, transplant and cancer patients).

Zoonotic Diseases Of Hamsters

Hamsters are infrequently associated with disease transmission to people. Nonetheless, each of the following diseases may on occasion be carried by hamsters and transmitted to humans. Please refer to individual disease information sheets for additional details.

Dermatophytosis (ringworm):

- ▶ A fungal skin infection caused by one of several species of *Microsporum* or *Trichophyton*. Humans may develop well-delineated areas of red, raised, itchy skin that are often lighter in the center and therefore appear as a "ring." The fungi are transmitted by contact with the skin, fur or dander of an infected animal, particularly if the person's skin is damaged or moist. Signs of dermatophytosis in hamsters can range from none at all, to dry, scaly, circular lesions on the head, limbs, ears and body. This is the most common disease transmitted from rodents to people.

Lymphocytic Choriomeningitis (LCM):

- ▶ A viral infection that typically causes no clinical signs or mild, self-limiting flu-like disease in immunocompetent people. Mice are actually the reservoir hosts, but contact with mice can lead to infection in hamsters and guinea pigs, which can then be transmitted to humans in rare cases. In immunocompromised individuals, infection can be very serious, even fatal. It can cause miscarriage or severe birth defects if a woman is infected during pregnancy.

Rabies:*

- ▶ A viral infection of the nervous system which is almost always fatal once clinical signs appear. Transmission occurs when the saliva of an infected animal comes in contact with a wound (such as a bite or scratch) or mucous membrane. Hamsters very rarely become infected with rabies because they are typically killed by the physical trauma of a bite from a rabid animal. However, hamsters can survive the bite of a rabid bat and become infected. Only a few cases of rabid hamsters biting humans have been reported, primarily outside North America, but more recently a rabid hamster which had contact with numerous school children was found in Canada.

Rodentolepiasis and Hymenolepiasis (tapeworms):

- ▶ The dwarf tapeworm of mice (*Rodentolepis nana*) and rat tapeworm (*Hymenolepis diminuta*) can infect hamsters and may infect people as well. Both may be transmitted by swallowing infected intermediate hosts such as fleas or beetles, but *R. nana* can also be transmitted directly from fecal material. Infection in humans rarely causes clinical disease, and is often self-limiting – adult worms may die within 4-6 weeks without specific treatment.

Salmonellosis:*

- ▶ An infection caused by one of many serotypes of *Salmonella*. It typically causes diarrhea, but in some cases it can cause much more serious disease. The bacteria are passed in the feces of an infected animal, which may or may not also show signs of diarrhea. Transmission is by the fecal-oral route. The first reported outbreak of human salmonellosis associated with transmission from pet rodents occurred in the USA in 2004 and included several cases associated with contact with sick hamsters.



Tularemia:*

- ▶ A bacterial infection caused by *Francisella tularensis*, which is found naturally in many parts of the northern hemisphere, including the USA and Canada. It is most commonly found in wild animals such as lagomorphs (e.g. rabbits, hares) and rodents. Infection in people and animals may be associated with no clinical signs, flu-like signs, or severe diarrhea or pneumonia. The bacteria themselves are highly infectious - it only takes 10-50 bacteria to infect a person.
- ▶ There has been only one report of suspected transmission of *F. tularensis* from a pet hamster to a person, which occurred in Colorado in 2004. It is suspected that the hamster was infected by a wild rodent while at the pet store, and passed on the infection to a three-year-old boy by biting him. The hamster was ill (diarrhea) at the time, and died two days later. Tularemia has also been associated with hamster hunters in the former USSR.

* Notifiable disease in people in Canada

Recognizing Illness In Hamsters

- Signs of illness in hamsters include decreased appetite and activity level, increased aggression, weight loss, abnormal discharge from the mouth, nose and eyes, changes in the colour or consistency of feces, dull or dirty hair coat, abnormal posture, and over-grooming or self mutilation of a particular part of the body.
- If the behaviour or appearance of a pet hamster becomes abnormal, the owner should be encouraged to seek veterinary advice. Some owners may avoid taking a hamster to a veterinarian due to the cost of veterinary care relative to the value of the animal. Illnesses in hamsters may be due to inadequate or inappropriate diet or environment, but it is very important to rule out infectious disease.
- Ask the owner to provide a fresh fecal sample from the hamster's enclosure. The major zoonotic pathogens of hamsters (*Salmonella*, tapeworms, *F. tularensis* and LCM virus) can all be detected in hamster feces. Contact your diagnostic lab for instructions if you want to test for LCM because there is a high-risk person in the household.
- Points to address when attempting to discern contributing factors to, or the cause of, illness in a hamster include:
 - ▶ Adequate provision and accessibility to clean drinking water
 - ▶ Type of enclosure (new, old, plastic/metal/wood, finish [e.g. paint/varnish]), and frequency of cleaning
 - ▶ Location of enclosure (high traffic area, marked variations in temperature, adequate light)
 - ▶ Frequency, quantity and quality of feed
 - ▶ Frequency and type of handling
 - ▶ Presence of any small rodent infestation, which could result in pathogen transmission to a pet hamster

Infection Control



Although hamsters are generally low-risk in terms of their potential to transmit disease to humans, there is always some risk. Therefore, prolonged close contact, such as allowing a hamster to sleep in the same bed as a child, should not be permitted. Anyone handling a hamster, especially children, should be taught how to do so correctly and as safely as possible.

Hand Hygiene

- Hands should be thoroughly washed with soap and running water after handling a hamster, cleaning a hamster's cage, or coming into contact with hamster bedding, feces or urine.
- Children should be supervised by an adult to ensure that this is done properly.

Cage Cleaning

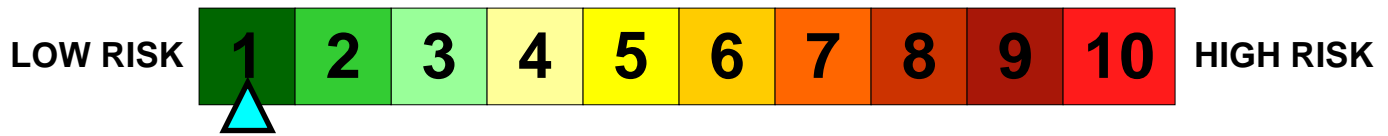
- A hamster cage should be thoroughly cleaned at least once per week, including removal of all bedding and disinfection of the cage itself. Some hamsters need to have their cages cleaned out more frequently than this. Regular cleaning of a hamster's cage can help prevent the spread of pathogens such as LCM virus and *Salmonella*.
- All old bedding should be removed and the inside of the cage should be scrubbed with soap and water using a stiff-bristled brush in order to remove any remaining excrement/debris that may be adhered to the surface. A hamster will often defecate in the cage corners, so extra attention should be paid to these harder-to-clean areas.
- Once the cage looks clean, a disinfectant such as concentrated household bleach, chlorhexidine, or a quaternary ammonium compound should be applied to all surfaces for at least 10 minutes. The cage should then be rinsed thoroughly with water and dried prior to filling it with clean bedding.
- Hands should always be washed thoroughly with soap and water after cleaning the cage. Immunocompromised individuals (e.g. HIV/AIDS, transplant or cancer patients) should try to have someone else clean their hamster's cage for them if possible. Otherwise, these individuals should wear rubber gloves while they are cleaning and be particularly diligent about washing their hands as soon as they are finished.



Zoonotic Disease Risk

For **healthy adults and older children** (over 5 years old), the zoonotic disease risk associated with a pet hamster is:

HEALTHY ADULTS / OLDER CHILDREN

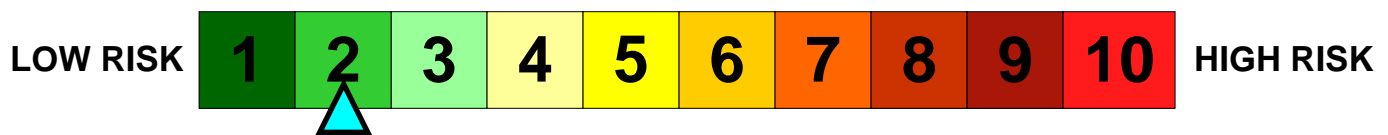


Groups at higher risk of acquiring a zoonotic disease from a hamster include **immunocompromised individuals** (e.g. HIV/AIDS, transplant and cancer patients), infants, **young children** less than five years of age, and the elderly. **Pregnant women** need to avoid exposure to the lymphocytic choriomeningitis virus. To minimize the disease risk, important points to consider include the following:

- Be diligent and thorough about hand washing after handling the animal or cleaning its cage.
- Keep the hamster away from food and food preparation areas.
- Know how to handle a hamster correctly, and do so gently and only when necessary to minimize the risk of bites or scratches.
- Keep the hamster in good health through proper management and veterinary care.

For these groups, the zoonotic disease risk associated with a pet hamster is likely:

YOUNG CHILDREN / IMMUNOCOMPROMISED PERSONS / PREGNANT



Additional Information:

- Johnson-Delaney CA, Harrison LR. Exotic Companion Medicine Handbook for Veterinarians. Lake Worth, Florida: Wingers Publishing, 1996.
- Hillyer EV, Quesenberry KE, eds. Ferrets, Rabbits and Rodents: Clinical Medicine and Surgery. 2nd ed. St. Louis, MO: WB Saunders, 2004.
- Centers for Disease Control and Prevention (CDC). Outbreak of multidrug-resistant *Salmonella typhimurium* associated with rodents purchased at retail pet stores - United States, December 2003-October 2004. MMWR Morb Mortal Wkly Rep. 2005;54:429-433.

