



## 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. 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.

## Hamster Management

Hamsters have specific dietary and environmental requirements to keep them healthy. Owners should be referred to their veterinarian or other experienced hamster owners for specific details on hamster husbandry, as well as how to handle a hamster appropriately in order to reduce the risk of biting.

## Hamster Bites



- All hamsters may bite. Rodent bites are often small and superficial, but they can also potentially cause deep puncture wounds. All bite wounds should immediately be cleaned vigorously with large volumes of soap and water, and monitored closely for signs of infection. Infection is usually caused by commensal bacteria from the hamster's mouth or the skin of the person bitten. While rare, rabies, *Francisella tularensis*, and potentially lymphocytic choriomeningitis virus, can be transmitted by a bite from an infected hamster.
- Antimicrobial therapy should be considered for any bite over a joint, hand, tendon sheath, prosthesis or implant or in the genital area, as well as 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, dermatomycosis):

- ▶ A fungal skin infection caused by one of several species of *Microsporum* or *Trichophyton*. Humans may develop well-defined 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. Miscarriage or severe birth defects may occur 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 insects 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 stool, 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.
- The presence of a small rodent infestation in the household is an important factor to consider, as wild rodents can transmit certain pathogens to a hamster. The hamster could then potentially transmit the pathogen to the individuals with which it has close contact.

## 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. Excessive handling can also be very stressful to the animal. 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 lymphocytic choriomeningitis virus and *Salmonella*.
- Hands should always be washed thoroughly with soap and water after cleaning the cage.
- Immunocompromised individuals (e.g. HIV/AIDS, transplant or cancer patients) and pregnant women should try to have someone else clean their hamster's cage 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:



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:



## Additional Information:

- 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.
- Centers for Disease Control and Prevention (CDC). Tularemia associated with a hamster bite - Colorado, 2004. MMWR Morb Mortal Wkly Rep. 2005;53:1202-1203.
- Amman BR, Pavlin BI, Albarino CG, et al. Pet rodents and fatal lymphocytic choriomeningitis in transplant patients. Emerg Infect Dis. 2007;13:719-725.

