



CARE OF GUINEA PIGS

Guinea pigs are rodents (related to chinchillas and porcupines) that originated from the Andes Mountains region of South America. They were probably first domesticated by the Indians of Peru, who used them for food and as sacrificial offerings to their gods. In the 16th century, Dutch explorers introduced guinea pigs to Europe, and selective breeding and captive rearing began in earnest.

Guinea pigs are very popular pets because of their availability, docile temperaments, tendency to not bite or scratch when handled, and relatively clean habit. They are not long-lived, which can be disconcerting to owners (especially children). However, many parents believe that having their children experience relatively short period of companionship and subsequent death is a meaningful way to expose children to the "ups and downs" of life.

In their natural habitat, guinea pigs live in open, grassy areas. They seek shelter in naturally protected areas or burrows deserted by other animals. Guinea pigs are sociable animals and tend to live in groups. They are strictly herbivorous (plant eating) and do most of their foraging for grasses, roots, fruits, and seed in the late afternoon and early evening.

For many years guinea pigs have been used in biomedical research laboratories. Consequently, their medical problems have been traditionally approached on a group basis, rather than on an individual basis. As a result, very little practical information exists on the medical care and treatment of individual pet guinea pigs. Even less information is available to owners on the responsible home care of guinea pigs and recognition of their medical problems.

SECTION 1: HANDLING AND RESTRAINT

Guinea pigs rarely violently struggle when they are being picked up but often make a "squeal of protest", which sounds pig-like to many people. Nevertheless, great care should be taken not to injure them when picking them up. The guinea pig should be approached with 2 hands. One is placed under the guinea pig's chest and abdomen,

and the other supports its hindquarters. Adults and those that are pregnant should receive gentle, but firm, and total support.

SECTION 2: HOUSING

Proper housing is a major factor in the maintenance of healthy guinea pigs. The well-being of the animals must be primary consideration. Guinea pigs can be housed within enclosures made of wire, stainless steel, durable plastic, or glass. The last 3 materials are preferred because they resist corrosion. Wood and similar materials should not be used in construction of enclosure because they are difficult to clean and cannot withstand gnawing. The construction and design of the enclosure must prevent escape. The enclosure also must be free of sharp edges and other potential hazards.

The enclosure must be roomy enough to allow normal activities and breeding, if the latter is desired. One reference recommends at least 100 square inches of floor per adult, whereas breeders should be allowed 180 square inches per animal.

The enclosure can be open at the top, provided that its sides are at least 7-8 inches high. Male guinea pigs (especially breeding males) require enclosures with sides at least 10 inches high. Males tend to more rambunctious.

Guinea pigs can be housed on wire mesh (suitable for housing rats) but it is not recommended. Though wire mesh allows urine and most fecal pellets to drop through, thereby keeping the bedding and the residents cleaner, guinea pigs house for long periods on wire tend to develop serious injuries to the bottom of their feet (see section on foot pad infections). Furthermore, a leg may be broken if it becomes entangled in the mesh. This is most often a problem with guinea pigs that have not been reared on wire mesh, and occurs soon after they have been introduced to it.

Enclosures that provide solid flooring and an adequate supply of a preferred bedding are best for guinea pigs. They should be easy to clean, well-lighted, and adequately ventilated (see vital statistics for preferred temperature and humidity ranges). Bedding must be clean, non-toxic, absorbent, relatively dust-free and easy to replace. Shredded paper, wood shavings, and processed corn cob are preferred bedding materials. Sawdust should be avoided because it tends to collect within the external genitals of males, forming an impaction. Rarely does this impaction interfere with urination, but it may inhibit successful breeding.

Guinea pigs seem most comfortable when they are spared exposure to excessive noise, needless excitement and confusion, and other stresses. Sudden environmental changes should also be prevented.

Guinea pigs have 2 types of reactions when startled by a loud noise or sudden movement or when placed in a strange environment. They may "freeze" completely motionless (for up to 20 minutes), or they may panic. Panic involves erratic running

and leaping, often accompanied by shrill squealing. Groups of guinea pigs may stampede in a circle, often trampling the younger residents within the enclosure. A panic reaction scatters bedding and food, fouling the food and water containers. Visual security (a place into which they can retreat when frightened) should always be provided. Rectangular enclosures containing barriers also reduce the tendency to stampede and circle.

SECTION 3: HYGIENE

The frequency with which the enclosure is clean depends on its design, the materials out of which it is made, and the number of guinea pigs that reside within it. As a general rule of thumb, the enclosure and all cage furniture should be cleaned and disinfected once weekly.

Food and water containers should be cleaned and disinfected once daily. More than one set of containers should be maintained and the soiled set should be washed in a dishwasher, if possible. Vigorous scrubbing of the enclosure and the furniture with hot water and soap and a thorough rinse should be followed by use of a disinfectant (Roccal-D: Winthrop). Vinegar is often required to remove the scale deposited by the crystalline urine of guinea pigs.

SECTION 4: FOOD AND WATER

Good quality food and fresh, clean water must be readily available at all times. Commercially available pelleted chows provide all of the essential nutrients, as long as the pellets are fresh and wholesome pellets, but this is not good. Unlike most mammals (including rabbits), guinea pigs require a high level of folic acid. Unlike rabbits, guinea pigs cannot manufacture their own Vitamin C and must, therefore, receive it from an outside source. Interestingly, people and our primate relatives share this dependence on the vitamin C from the food we consume. Pellets milled for guinea pigs take these special requirements into consideration and are approximately fortified with these two nutrients, among many other essential ones.

Guinea pig chows generally contain 18-20% protein, 16% fiber and about 1 gram of vitamin C per kilogram of ration. Even when the fresh pellets are properly stored in a cool, dry place, about half of the Vitamin C content is degraded and lost within 6 weeks of manufacture. Therefore, the diet should be supplemented with Vitamin C as follows: 200mg of ascorbic acid (vitamin C) should be added to about 1qt of drinking water, made up fresh every 12 hours, or a single guinea pig should be offered one handful of kale or cabbage or one-quarter of an orange daily.

Researchers are not in agreement on the advisability of adding other items to the balanced ration (pelleted chows). We recommend that fresh greens, hay, and small amounts of fruit be offered daily with several precautions: These items should not

exceed 10–15% of the daily diet. Furthermore, the fresh items must be thoroughly washed to avoid pesticide residues and possible bacterial contamination.

All foods should be provided in heavy ceramic crocks that resist tipping over. The sides of the crocks should be high enough to keep bedding and fecal pellets out of the food, or the crocks should be elevated slightly above the bedding.

Water is most easily made available and kept free from contamination by providing it in one or more water bottles equipped with “sipper” tubes. Guinea pigs tend to contaminate and clog their water bottles more than other pet rodents by chewing on the end of the sipper tube and “backwashing” food particles into it. For this reason, all food and water containers should be cleaned and disinfected daily.

Guinea pigs tend to be creatures of habit and do not tolerate changes in the presentation, taste, odor, texture or form of their food and water. Pet owners should avoid making radical changes in the food and water containers. Any changes in the food itself should be made gradually. Failure to do so usually results in the guinea pigs refusing water and food, which can lead to disease.

SECTION 5: BREEDING CONSIDERATIONS

The single most important breeding consideration is that female guinea pigs should be first bred before 7 months of age. If the first breeding is delayed beyond this time, serious (sometimes life-threatening) problems with delivery are encountered. Females should be first bred between 3–7 months of age. Males should be 3–4 months old at their first breeding.

The guinea pig's heat cycle lasts 16 days. The period during which the female is receptive to the male and will allow breeding last about 8 hours. Female guinea pigs can come back into heat 6–15 hours after giving birth. This is called a “postpartum estrus”, which means that they can be nursing a litter and pregnant at the same time!

Pregnancy lasts an average of 62–68 days. The larger the litter, the shorter the term of pregnancy and vice versa. The duration of pregnancy for guinea pigs is unusually long when compared with that of other rodents.

Pregnant sows (females) exhibit a grossly enlarged abdomen during the latter stages of pregnancy. It is not uncommon for their body weight to double during pregnancy. The time of delivery may be difficult to determine because of the relatively long gestation period and because pregnant sows do not build nests. However, the week before a new sow is about to deliver a litter, a slowly widening separation of the pelvis develops just in front of the external genitalia. This separation reaches slightly more than 1 inch in the hours just before delivery.

This separation of the pelvis does not develop in females that are bred for the first time after 7 months of age, creating an impossible and tragic situation. Delivery of

the young is not possible and a c-section must usually be performed to save the life of the sow and her babies.

An uncomplicated delivery usually requires about ½ hour, with an average of 5 minutes between each baby. Litter sizes range from 1 to 6 young, with an average of 3-4. Litters resulting from the first breeding are usually very small. Abortion and stillbirths are common with guinea pigs throughout their breeding lives.

The young are born relatively mature. They are usually large and fully furred, and can walk about. They also have teeth and open eyes at this time. Even though newborn guinea pigs can eat solid food and drink water from a container, they should be allowed to nurse their mother for at least 2 weeks.

SECTION 6: CONDITIONS REQUIRING VETERINARY ATTENTION

Malocclusion of Premolar Teeth (Slobbers)

A common problem of guinea pigs (especially those over 2-3 years old) results when the upper and lower premolar teeth (the most forward cheek teeth) meet improperly while chewing. In time, this problem results in abnormal wear in these teeth. This in turn causes entrapment of and continual injury to the tongue. Affected animal try to eat but cannot chew and swallow food. Drooling results in a continually moist mouth and chin. Weight loss is often dramatic.

A veterinarian must be consulted as soon as possible if this condition is suspected. The diagnosis is confirmed upon direct visual examination of the mouth. Correction of the problem involves general anesthesia and aggressive trimming or filing of the overgrown teeth. This is a difficult procedure because of the guinea pig's extremely small mouth opening. Forced feedings and antibiotics are usually necessary for a number of days before and after this procedure has been performed.

There is no permanent solution or correction for this problem. Periodic trimming or filing of the teeth is almost always necessary. Guinea pigs with this problem should never be bred so as to prevent passing this most undesirable trait to offspring.

Vitamin C Deficiency (Scurvy or Scorbutus)

Guinea pigs cannot manufacture vitamin c and must receive an adequate supply of it from outside food sources. Vitamin C deficiency results in scurvy, which is characterized by inappetence, swollen, painful joints and ribs, reluctance to move, poor bone and teeth development, and spontaneous bleeding from the gums and into muscle.

Adequate levels of vitamin c are always included in the formulation of pelleted diets for guinea pigs. Often, however, handling and improper storage (exposure to

light, heat and moisture) of the pellets results in loss of vitamin c. Therefore, even guinea pigs fed presumably reliable diets may develop scurvy if the diet's vitamin c content has been reduced or lost.

A veterinarian should be consulted if this disease is suspected so that the diagnosis can be confirmed. The veterinarian will prescribe a program of vitamin c supplementation (via food or water or injection) to reverse the signs.

Difficulties During Birth

Dystocia:

Female guinea pigs intended for breeding must be first bred before 7 months of age. If the first breeding is delayed beyond this time, serious (sometimes life-threatening) problems with delivery are encountered.

A portion of the pregnant sow's pelvis must widen for successful delivery of her young. This separation fails to develop in females bred for the first time after 7 months of age, usually necessitating a c-section to deliver the young and save the sow's life.

Signs of dystocia include straining and uterine bleeding. Veterinary help must be sought immediately. The veterinarian will evaluate the pregnant sow by direct exam and by taking x-rays. If a vaginal delivery of the young is not possible, then a c-section will be necessary.

Pregnancy Toxemia:

A serious condition that usually occurs in overweight sows in their first or second pregnancy. Signs are most likely to be noted over 1-5 days during the last 2 weeks of pregnancy or the first week following birth. These include inappetence, depression, weakness, reluctance to move, incoordination, difficulty breathing, coma and death. Some afflicted sows may show no signs and suddenly die.

There is no single cause for this condition, but stress and obesity are major predisposing factors. Others include advancing age, lack of exercise, fasting just before the onset of signs, and a large number of developing fetuses. The fundamental underlying problem appears to be inadequate blood flow to the pregnant uterus.

Sows showing any of these signs must be seen immediately by a vet. Due to treatment being often unsuccessful, prevention of pregnancy toxemia is of paramount importance. Pregnant sows should not be allowed to become obese. Fasting and stress must be avoided, especially in the last several weeks of pregnancy. Pregnant sows must be supplied with fresh water at all times and fed a nutritious diet.

Hair Loss

Hair loss or thinning of the hair is a common problem of female guinea pigs that have been repeatedly bred. These sows tend to lose hair with each successive pregnancy.

Hair loss is frequently noted among juvenile guinea pigs in a weakened state at or around the time of weaning. "Barbering" also results in hair loss. This vice (bad habit) occurs when guinea pigs habitually chew on the haircoats of guinea pigs that are lower in the social "pecking order". Younger guinea pigs, in particular, can lose substantial amounts of hair as a result of this activity.

Hair can also be lost because of fungal disease and external parasite infestations.

Heat Stress (Heat Stroke)

Guinea pigs are especially susceptible to heat stroke, particularly those that are overweight and/or heavily furred. Environmental temperatures above 85F, high humidity (above 70%), inadequate shade and ventilation, crowding and stress are additional predisposing factors.

Signs of heat stroke include panting, slobbering, weakness, refusal to move about, delirium, convulsions and eventually death. Heat stroke is treatable if recognized relatively early. Heat-stressed guinea pigs should be immediately sprayed with or bathed in cool water. Once the first-aid is undertaken, a vet should be contacted immediately.

Prevention heat stroke involves providing adequate shade from the sun (if guinea pigs are housed outdoors) and adequate ventilation (if housed indoors). A continuous light mist or spray of water and/or a fan operating over a container of ice can be directed at a guinea pig within its enclosure to lower the air temperature, whether the guinea pig is housed indoors or outdoors.

Cancer

Cancer is a relatively rare problem of guinea pigs. As with most animals, it is most likely to affect older guinea pigs. Most tumors are benign and involve the skin and respiratory tract lining. Cancer may also affect the reproductive tract, mammary glands (breasts) and blood (leukemia).

Footpad Infections (Bacterial Pododermatitis)

Serious (sometimes crippling) infection of the footpads are common among pet guinea pigs housed continuously on wire. The other major predisposing factor is fecal soiling of wire-bottomed enclosures. The front feet of overweight animals are especially vulnerable to this condition.

Signs include swelling of the feet, lameness, reluctance to move, and inappetence. The flooring of the enclosure must be changed and overall sanitation must be improved. A vet must be consulted regarding treatment of the affected feet. Topical dressing with an antibiotic and periodic bandaging are necessary during the usually lengthy recovery period. Injectable antibiotics are often used by veterinarians in treatment of this condition. Arthritis is a frequent and unfortunate consequence of these infections.

Cervical "Lumps" (Cervical Lymphadenitis)

Abscessation of the lymph nodes immediately beneath the lower jaw, in the upper neck, usually results when coarse foods (such as hay) injure the lining of the mouth or when superficial wounds penetrate the skin over these lymph nodes. Bacterial invasion causes painful, swollen abscesses under the lower jaw. Sometimes these abscesses break open and exude a thick, creamy yellow-white pus.

A vet can perform a bacterial culture of the pus with antibiotic sensitivity testing to determine the appropriate antibiotic to use. If the abscesses are large, surgical removal and aggressive antibiotic therapy may be recommended.

Pneumonia

Pneumonia is one of the most common bacterial diseases of pet guinea pigs. A number of potential disease-causing bacteria may inhabit the respiratory tracts of otherwise normal guinea pigs. Stress, inadequate diet, and improper home care often predispose pet guinea pigs to respiratory infection. Signs of pneumonia may include labored or rapid breathing, discharge from the eyes and nostrils, lethargy and inappetence. Some animals show no signs at all before dying suddenly.

Middle and inner ear infection occasionally result from respiratory disease in guinea pigs. Additional signs may include incoordination, tilting of the head, circling to the side, and rolling.

A veterinarian must be consulted about this serious bacterial infection. Aggressive antibiotic therapy and appropriate supportive care are necessary. Bacterial culture and antibiotic sensitivity testing help the vet select an appropriate antibiotic. Unfortunately, even though the signs of infection can be relieved, the causative bacteria may not be eliminated.

Rabbits and rats harbor at least one of the bacteria known to cause pneumonia in guinea pigs. Therefore, it is wise not to house these animals with or near guinea pigs.

Intestinal Infections (Bacterial Enteritis)

Numerous bacteria can cause infection of the gastrointestinal tracts of guinea pigs. Some of these bacteria are introduced on contaminated greens, vegetables, or water.

Intestinal infection can manifest themselves as sudden death without prior signs, or as a lengthier period of illness characterized by lethargy and marked weight loss. Diarrhea may or may not be noted in either case.

A veterinarian will recommend aggressive antibiotic therapy and appropriate supportive care. A bacterial culture of the patient's stool and antibiotic sensitivity testing help the veterinarian select the appropriate antibiotic.

Ringworm

Ringworm is a skin disease caused by a fungus similar to the one that causes athlete's foot in people. Young guinea pigs are usually more susceptible than adults. Ringworm in guinea pigs is generally characterized by patchy hair loss on the face, nose, and ears. The skin in these areas may appear flaky. Areas of hair loss may extend along the top side of the trunk.

A vet must do a number of scrapings of the skin to confirm the diagnosis. Successful treatment consists of 1-4 injections of a specific drug (ivermectin) 10-14 days apart. Any wood shavings within the enclosure should be replaced by white paper toweling during treatment to help make the patient more comfortable.

Mites can only be transmitted by direct contact between infested and uninfested guinea pigs. Therefore, pet guinea pigs are very unlikely to harbor these parasites unless they are recent acquisitions that were previously in contact with new, infested guinea pigs. Guinea pig mites do not parasitize people.

Intestinal Parasite Problems

Intestinal parasites are usually not a significant problem in pet guinea pigs. A protozoan (one-celled organism) parasite may cause coccidiosis in guinea pigs. Signs of this disease include weakness, diarrhea, and severe weight loss. Pinworm infections of guinea pigs usually go unnoticed.

Both of these parasitisms can be diagnosed by a vet by stool examination. Both are treatable using specific drugs prescribed by the vet. Neither parasite problem is transmissible to people.

Section 7: Sensitivity of Guinea Pigs to Certain Antibiotics

Guinea pigs as a group are unusually sensitive to certain antibiotics, whether they are given orally or by injection. Potentially harmful antibiotics include ampicillin, penicillin, bacitracin, erythromycin, lincomycin, gentamicin, clindamycin, streptomycin,

vancomycin, and sometimes tetracycline. Interestingly, even certain antibiotics used topically may produce lethal effects.

The major way in which certain antibiotics cause reactions is by altering the normal microbial balance within the gastrointestinal tract. Once the normal intestinal microfloral balance has been upset, certain bacteria multiply to abnormally large numbers. The multiplying bacteria produce harmful chemicals that can have lethal effects.

Certain antibiotics (streptomycin, dihydrostreptomycin) are directly toxic and do not alter the microbial balance within the gastrointestinal tract. These antibiotics should never be used in guinea pigs.

Though injectable antibiotics can cause the problems described above, oral antibiotics are more often associated with them. Antibiotics should never be given to guinea pigs unless they are prescribed by a vet. If oral or injectable antibiotics are prescribed, 2 1/2cc (1/2 teaspoon) of plain, white yogurt should be given orally to the treated animal morning and evening the duration of the antibiotic therapy and for an additional 5-7 days afterward.

A vet must confirm the diagnosis and prescribe topical and/or oral medication. The medication to be used depend on the number of ringworm areas present and their distribution on the body.

Ringworm can be transmitted from guinea pigs to people. It is, therefore, important to limit or restrict handling or infected guinea pigs (especially by young children) until their disease has been successfully treated. If handling is necessary, the handler should thoroughly wash his hands afterward.

Viral Diseases

Most Viral infection of pet guinea pigs are either mild or inapparent.

Lice Infestations

Lice and mites are the most common external parasites of guinea pigs. Lice are tiny, wingless, flattened insects that live within the haircoat. Both the adults and their eggs are found attached to the individual hairs.

Guinea pigs may be parasitized by the 2 types of biting lice. Both abrade the skin surface and feed off the body fluids that exude through the very superficial wounds they create.

Light infestations usually go unnoticed. Heavy infestations are usually accompanied with excessive itching, scratching and some hair loss. Scabs may also be evident on and around the ears.

A vet can confirm the diagnosis by direct examination of the haircoat. Direct examination is usually all that is necessary, though use of a microscope is very helpful. The veterinarian will usually prescribe an insecticide shampoo to treat affected guinea pigs.

Lice can be transmitted by direct and intimate contact between infested and uninfested guinea pigs. Therefore, pet guinea pigs are very unlikely to harbor these parasites unless they are recent acquisitions that were previously in contact with louse infested guinea pigs. Established pet guinea pigs could also be infested by being placed in close contact with new, infested guinea pigs. Guinea pig lice do not parasitize people.

Mite Infestations (Mange)

A mite similar to the scabies mite of people causes serious infestations. In pet guinea pigs. Mites are microscopic, spider like organisms that live within the outer layers of the skin. They usually cause intense scratching and significant hair loss. Some cases without scratching have been reported. Some guinea pigs are so miserable because of the infestation that their constant scratching produces serious wounds. They may run wildly or in circles, and occasionally even have convulsions.

Yogurt helps replace those beneficial intestinal bacteria that often perish during antibiotic treatment.

Section 8: Vital Statistics

Scientific name	<u>Cavia procellus</u>
Life Span	3-4 years
Potential Life Span	6-7 years
Desirable Environmental Temperature Range	65-75 F
Recommended age at 1st breeding	Male: 3-4 months Female: 3-7 months (not after 7 months)
Length of estrus (heat) cycle	16 days
Length of estrus (period during which Female is receptive for copulation)	8 hours
Gestation (pregnancy) period	Averages 63-68 days
Average litter size	3-4 young (range, 1-6)

Age at weaning

2-3 weeks

Section 9: Human Allergies to Guinea Pigs

Certain people are allergic to the hair and/or dander of guinea pigs. People working with guinea pigs in laboratory situations are more likely to develop such allergies because of their continual association with them. Signs include itchy eyes, sneezing, runny nose, persistent cough, shortness of breath, wheezing, a skin rash, and anaphylactic shock (a true medical emergency).

Owners of pet guinea pigs may also be susceptible, and a medical doctor should be consulted about suspected allergy problems if a guinea pig is kept as a pet in the household. Guinea pig owners with such a suspected allergy may want to consult an allergist.

Section 10: Clubs and Organizations

A wealth of additional useful information may be obtained by joining one or more of the organizations listed below. All of these groups publish newsletters or bulletins.

American Cavy Breeders Association

c/o Linda Mowers

933 Krieger Road

Webster, NY 14580

California State Rabbit and Cavy Breeders Association

c/o Sonny Harper

20041 Clark Street

Orange, CA 92669

(714)538-0821

San Gabriel Valley Cavy Breeders Association

City Farmer Caviary

11142 Tarawa Dr

Los Alamitos, CA 90720

(213)431-1571

Section 11: Suggested Reading

Harkness and Wagner: The Biology and Medicine of Rabbits and Rodents. 4th ed.
Lea and Febiger, Philadelphia, 1995.