



## CARE OF RABBITS

Rabbits make intelligent, friendly and quiet house pets. The average life span for a bunny is 7 to 10 years with records of up to 15 years of age being reported. The following information is designed to help you take the best care of your pet and enjoy a happy, healthy life with him or her.

### DIET

Rabbit Pellets - A good quality rabbit pellet may be offered daily but in limited quantities. The UNCONTROLLED feeding of a pelleted diet can lead to obesity, heart and liver disease, chronic soft stools, kidney disease, and bladder stones which results from the high concentration of carbohydrates, low fiber and high calcium levels in the pellets. Make sure that you buy pellets high in fiber (18% or more), and that you buy small quantities. Keep the pellets refrigerated or cool and try to prevent spoilage. Old, rancid pellets can cause a rabbit to stop eating.

The following chart shows daily amounts to be fed to your bunny. DO NOT REFILL THE BOWL even if the pellets are all eaten before the next day. OVERFEEDING OF PELLETS IS THE NUMBER ONE CAUSE OF HEALTH PROBLEMS THAT WE SEE. Keep your rabbit healthy by not overdoing it!

\*Rabbits up to 8 months of age can have access to pellets free choice, because they are still growing rapidly. However, after 8 months of age they should receive the following maintenance diet.

2-4 Lb. of body weight  
- 1/8 cup daily    8-10 Lb. of body weight - 1/2 cup daily

5-7 Lb. of body weight  
- 1/4 cup daily    11-15 Lb. of body weight - 3/4 cup daily

\*Please note that these food amounts are for the maintenance of the non breeding, mature house rabbit. If you intend to breed your pet, then we suggest doubling the daily pellet amounts during the breeding season. For does that are nursing babies, the pellets should be increased over a 4-5 day period to free choice until the babies are weaned. After the breeding period is over, resume feeding at the maintenance levels as listed above.

In some situations, your veterinarian may recommend that pellets be totally removed from the diet. Do not become alarmed because your pet will be able to receive all the nutrients necessary from the hay and fresh foods that you will be instructed to feed. Rabbits are also very efficient at making their own vitamin and minerals in the form of cecotropes (see Night Droppings). Complete removal of pellets from the diet is commonly the treatment suggested by our hospital for very overweight bunnies who need to lose weight safely or for rabbits with chronic soft stools.

Hay - TIMOTHY OR OTHER GRASS HAY SHOULD BE OFFERED DAILY IN UNLIMITED AMOUNTS. It is important that hay be available at all times for your pet. Rabbits tend to eat small amounts of food frequently throughout the day and withholding hay for long periods of time can lead to intestinal upsets.

We prefer the loose, long strands of hay, as opposed to the pressed cubes or chopped hay. The fiber in the hay is extremely important in promoting normal intestinal motility. Hay also contains proteins and other nutrients essential to the good health of your pet. We no longer recommend the routine use of alfalfa hay, particularly if it is being used along with pellets (which are already high in alfalfa), because it may provide too much calcium and extra carbohydrates (and calories) which may lead to serious health problems and digestive upsets. If the rabbit is on a no pellet diet, then alfalfa hay may be used as directed by your veterinarian, but weight loss may be more difficult to achieve.

Check with your local pet stores for timothy hay or other types of grass hay. Also check with local feed stores and horse barns, because many of these places will sell you a "flake" of hay off a bale at a very nominal cost. We also sell flakes of hay at our hospital. Hay should be stored in a cool, dry place with good air circulation (don't close it tightly in a plastic

bag). Discard wet or damp hay, or any hay that does not have a "fresh" smell. One efficient way to offer the hay is to use a hay rack on the outside of the cage. Your pet can pull the hay into the cage through the bars as he or she needs it. This keeps the hay clean and eliminates much of the waste.

At certain times of the year and in certain locations, it may be difficult to obtain grass hay. At these times it is acceptable to use hays mixed with alfalfa, or use strictly alfalfa hay for a short period of time. The most important thing is to ALWAYS HAVE HAY AVAILABLE TO THE PET. Remember, we are restricting the pellets and the hay is a major source of fiber and nutrients.

Fresh Foods - These foods should be given daily. Rabbits in the wild eat a lot of tough, fibrous plants. Their digestive tract functions best when it has a high level of fiber which helps to maintain the normal intestinal motility. If your pet is not used to getting any fresh foods, you may start out gradually with the green leafy veggies listed below and add a new food item from the list every 3-5 days.

Young bunnies should also be introduced to new foods gradually. However, once your pet is eating fresh foods, try to give a minimum of 3 types daily. We find the addition of these fresh fibrous foods helps (along with the hay) in the prevention of a sluggish digestive tract, accumulation of material in the stomach, chronic diarrhea, plus your bunny will love you for it!

The following are all foods that you can try with your pet. The minimum amount of fresh food that can be given daily is about 1 heaping cup per 5 pounds of body weight. You may certainly give more if your pet is eating hay in addition to the greens. (We suggest up to 4 cups/5lbs daily...can be divided up during the day if you like). Because fresh vegetables are not as concentrated in nutrients pound per pound as the dry hay, you should not depend on greens only to maintain your pet's weight. Rabbits must have hay as well as greens in the diet!

Here are some examples of food items you can feed your pet: Carrot tops, beet tops, dandelion greens and flowers (these are excellent, but no pesticides, please), kale, collard greens, escarole, romaine lettuce, (don't give light colored leaf lettuce or iceberg lettuce), endive, Swiss chard, parsley, clover, cabbage, broccoli (don't forget the leaves), carrot, green peppers, pea pods (the flat edible kind), Brussels sprouts, basil, peppermint leaves, raspberry leaves, raddichio, bok choy and spinach. Try to feed at least 3 different types of greens daily. Feeding just one type of green food only (especially broccoli, cabbage, Brussels sprouts and spinach) may lead to nutrient imbalances. The readily available packages of premixed greens for salad are usually not sufficient for the bunny's needs as they contain a lot of lower nutrient lettuces such as iceberg. You may use these premixes as no more than a third of the daily greens.

Treat Foods - In a total (of combined foods) amount of 2 heaping tablespoons per 4 lbs of body weight daily, you can give the following foods: Strawberries, papaya, pineapple, apple, pear, melon, raspberries, blueberries, apple pear, mango, cactus fruit, persimmon, peach, pear, or tomato. Banana can be "addicting" and fattening and we don't recommend using it with your pet unless it is only a very occasional treat. Dried fruits may be used as an alternative to the fresh listed above but use half the amount.

**\*WE DO NOT RECOMMEND GIVING ANY OF THE FOLLOWING FOODS ROUTINELY BECAUSE OF THEIR POTENTIAL FOR CAUSING DIETARY UPSET AND OBESITY:** Salty or sugary snacks, nuts, chocolate, breakfast cereals, and other grains (including oatmeal, corn either fresh or dried and bread).

Water - This should always be available, and changed daily. A dirty water container can breed bacteria that can cause disease. The container can be either a water bottle or heavy bowl that is weighted or secured to the side of the cage so that it does not tip over. Do not use medications or vitamins in the water, because your pet may not drink if the taste or color is altered.

Vitamins - These are not felt to be necessary if the rabbit is getting pellets, hay and fresh foods in the diet. In fact, the indiscriminate use of vitamins may lead to overdosage and serious disease. Rabbits produce their own vitamins by way of their cecotropes (See Night Droppings)

Salt or Mineral Block - Not necessary for the house pet on the described diet.

Night Droppings (Cecotropes)- It may seem strange to list this as a part of the diet, but these "special droppings" known as cecotropes, are an essential part of your pet's nutrition. During certain times of the day, usually about 4-6 hours after eating, you may observe your pet licking the anal area and actually eating some of the droppings in the process.

Cecotropes are softer, greener, and have a stronger odor than the normal hard, dry, round waste droppings and they come directly from the cecum which is the part of the digestive system where fermentation of food takes place. The cecum is located at the junction of the small and large intestine. In the cecum the indigestible portions of the diet are

broken down by bacteria which then produce fatty acids, amino acids (proteins), vitamins and minerals. Some of these nutrients are absorbed directly through the wall of the cecum, but most of the nutrients are kept inside the bacteria which are excreted in the cecotropes. Your pet knows when these droppings are being produced and will take care of eating them himself. After eating these "vitamin pellets" your pet will redigest the material and extract all the necessary nutrients. This habit may appear distasteful to us, but it is normal and important for your pet. In fact in this way, the rabbit can survive in the wild on food that other animals might not be able to thrive on because they could not digest it and extract the vital nutrients. The rabbit actually does an excellent job producing its own nutritional supplements within its body.

Occasionally a rabbit will drop these cecal pellets along with the waste pellets instead of eating them. They will be soft, brighter green, come in clumps and are misshapen, but formed and have an odor. This is not diarrhea, and if it only occurs occasionally, it is not considered a disease problem. Some rabbits that are sufficiently overweight that they can't reach their anal area to eat the cecotropes, may leave a lot of these special droppings in the cage. A diet that is low in fiber or high in starches may also lead to a chronic and persistent production of cecotropes that are too soft and liquid to be eaten and thus are left in little puddles around the environment mixed with normal waste stools.

## **ENVIRONMENT**

**Cage** - A metal cage may be used with a wire flooring of 14 gauge wire (1"x 1/2" square openings). A solid floored area is necessary to prevent sore hocks and to provide an area for resting. The size of the cage should be at least 24" x 24" x 18" high for the small and medium sized breeds and 36" x36" x 24" high for the large breeds.

You can use a towel (unless you have a pet that likes to eat towels), or piece of carpeting or wood for the solid area. We have found that the "synthetic fleece" cloth that is sold in fabric stores (in a variety of colors) works very nicely, as it is washable and if the pet chews on it, there are no long strands of fabric that can get caught in the digestive tract. Newspaper can be used under the wire. Do not use aquariums or solid walled cages because the lack of sufficient air circulation has been directly correlated with an increase in respiratory disease.

If you are going to have your bunny roaming the house either all or most of the time, make sure that you eliminate areas that your pet can get wedged in or escape from. Also watch out for electrical cords, which they like to chew on, carpeting, which they like to dig up and chew, and any toxic materials such as rodent poisons that your pet could get into. Get on your hands and knees and "bunny-proof" your home.

**Litter Box** - Rabbits can be litter box trained relatively easily. Initially you need to keep your pet in a small area, either in a cage or a blocked off section of the room and place a litter box in the corner (try to pick the corner your pet has already used). Make sure the sides of the box are low enough so your pet can get in and out easily. It is helpful to put some of the droppings in the box. Some people have also found it helpful to put some hay in the box to encourage defecation in the box (they usually pass stool while they are eating). You can reward your pet with one of the treat foods listed previously whenever he or she has used the box successfully. Do not punish your pet while in the litter box. Do not worry if your pet sits for extended periods in the litter box. Sitting in the box can be allowed as long as he is not soiling himself and the box is cleaned frequently.

Pelleted paper or other organic products make the best bedding. These products are non toxic and digestible if eaten, easier to clean up than shavings or clay litter, control odor better and are compostable. Some examples are Cellu-Dri and Yesterday's News (which are paper products), Mountain Cat Kitty Litter or Harvest Litter (pelleted wheat grass products), and Gentle Touch (pelleted aspen shavings). We carry a number of these products here at the clinic.

**Temperature** - Rabbits should be kept in the COOLEST and least humid area of the house. Studies have shown that bunnies kept in warm, humid environments with poor air circulation, have a dramatic increase in the incidence of respiratory disease over those animals kept in cool, dry environments with good air circulation. Damp basements are one of the worst areas to keep your pet. If your rabbit must be kept in a basement, invest in a dehumidifier and a fan to keep out dampness and improve air circulation.

The optimum temperature range for a bunny is 60-70 degrees F. When the temperature gets into the mid 70's, one may see an increase in drooling, and nasal discharge. If temperatures reach the upper 80's and beyond, and especially if the humidity is high the potential for a fatal heat stroke is very real. On very hot days, when air conditioning is not available, it is helpful to leave a plastic milk jug filled with frozen water in the cage, for a portable "air conditioner".

Please keep fresh, cool water available, as this will also help to keep the body temperature down. If your pet should actually experience a heat stress reaction, try holding an ice cube on the ear or gently wetting your pet down with cool (not cold) water. If the heat stroke is severe, veterinary attention will be necessary.

If your bunny is being kept outdoors in either warm or cold weather, make sure that part of the cage is sheltered from the wind and the sun. For the winter it is advisable to use straw bedding in the sheltered area for insulation and make sure that the water bowl is changed daily, as your pet can dehydrate rapidly if the water is frozen for more than a day.

## **HANDLING**

There are a number of ways to pick up your pet depending on how calm he is and his size. The main thing to remember is to always support the hind quarters to prevent serious spinal injuries. Rabbit's backbones are fragile and can easily fracture if the hind legs are allowed to dangle and the animal then gives one strong kick. Unfortunately these injuries are usually permanent and frequently result in the euthanasia of the pet, so the best policy is prevention. Never pick up a bunny by its sensitive ears, it's very painful and totally unnecessary! It is better to grasp the loose skin over the shoulders or scoop up under the chest and then place your other hand under the back legs to lift your bunny from the floor. Work near the floor when first learning to handle your pet so that if he jumps out of your arms he won't have far to go.

It may also be useful to put your bunny on its back when trying to trim nails and examine the underside of your pet. Most rabbits will learn to relax in this position and can withstand quite a bit of handling. Sit on the floor and put the rabbit on its back with its head just over the edge of your knees so that it hangs down a little. Restrain the body firmly between your thighs, and place one hand over the chest to help prevent him from turning over. Talk softly and stroke its chest and abdomen gently. It may be necessary to have a second person hold the legs when first learning to trim nails in this position. However, many pets become so relaxed that one person can do all the grooming by themselves.

## **MEDICAL PROBLEMS**

**Females** - A leading cause of death in the female rabbit is a cancer of the uterus called adenocarcinoma. This is a malignant disease, and unfortunately, once it is diagnosed, it has may have spread to other areas of the body. This cancer is preventable by having your pet spayed between 6 months and 2 years of age. The spay procedure involves removal of the bunny's uterus and ovaries and also helps to prevent the occurrence of breast cancer later in life.

**Males** - Some male bunnies, especially the dwarf varieties, may become extremely aggressive when they reach sexual maturity. There may be excessive biting and spraying of urine outside of the regular litter box area. The urine may develop a very strong and unpleasant odor due to the presence of male hormones, and these little boys may not groom themselves well, developing stained and messy tail areas. These males may start attacking other rabbits, leading to serious bite wounds. The best solution to these behavioral problems is castration (surgical removal of the testicles). This procedure is recommended any time after 5 months of age.

**Overgrown teeth** - Overgrown incisors (the front teeth) are usually caused by a congenital defect. Other causes can be injury or trauma to the teeth, infection in the roots of the incisors, or malalignment or infection in the molars (the back teeth).

Rabbits' teeth grow continuously throughout their life. If the incisors or molars are not lined up properly then they do not get worn down which results in overgrowth. Overgrown teeth can cause mouth infections, ulcerations of the lips or tongue and inability to pick up and eat food. The most common treatment for these overgrowths is to have the teeth cut periodically (every 3 - 8 weeks). We do not recommend the use of nail trimmers for this procedure, because it can easily result in the fracture of the incisor deep under the gum with the potential for subsequent gum infection. Your veterinarian will use a special instrument to trim the teeth more safely. If the molars are involved, or if the animal is very skittish, a general anesthetic may be required for the teeth trimming procedure. A permanent cure for overgrown incisors is the complete removal of the incisors under a general anesthetic. Rabbits are able to eat normally afterwards and teeth trimming will obviously no longer be necessary. If your pet has teeth problems, please discuss the options with your veterinarian.

**Loss of Appetite** - There are a variety of reasons why a bunny will lose his appetite. The most common reason in our experience is a diet low in fiber and high in calories. This combination can lead to obesity, fatty liver disease, sluggish movement of the intestinal tract, and accumulation of hair and food in the stomach which then makes the rabbit not feel like eating. When the rabbit doesn't eat, then the intestinal tract stops moving and the problem escalates.

We consider "hairballs" to be a symptom of other problems (usually a poor diet) and usually not a primary disease in itself. Angora breeds which have very long hair, may be an exception to this rule, because the length of their hair may make it difficult to pass.

Another common condition that can cause appetite loss is dental disease. Overgrown molars that have sharp edges which lacerate the tongue and abscesses of any of the tooth roots can cause a pet to cease eating due to pain.

Less common, but very serious conditions that can also lead to appetite loss include uterine infections, abscesses, respiratory infections, gastrointestinal infections, middle ear infections, eating toxic materials and bladder and kidney infections.

Loss of appetite is something that should be investigated by your veterinarian within 48 hours even if the pet is acting normally. Rabbits rapidly develop a deteriorating condition of the liver when they go without food for long periods of time. If the liver deteriorates excessively, there may be no way to reverse the process. Early diagnosis and treatment of appetite loss is the best way to save your pet's life.

Pasteurellosis - A large percentage of rabbits harbor a bacteria in their sinuses called *Pasteurella multocida*. This bacteria doesn't cause a problem in most bunnies with a healthy immune system. However, under certain stress situations, such as poor diet, high environmental temperatures, poor air circulation, overcrowding, moving, etc., this bacteria can reproduce rapidly and cause potentially serious disease.

This bacteria may cause infections of the upper respiratory tract, uterus, skin, kidney, bladder, tear ducts, middle ear or lungs. Please have your pet examined if you observe any discharges around the eyes, nose or anal area, or if there is a loss of appetite, depression, diarrhea, head tilt, loss of balance, or labored breathing. NEVER attempt to use antibiotics without veterinary supervision. Your pet's gastrointestinal tract is an extremely delicate organ, dependent on large populations of healthy bacteria to digest the food. If inappropriate antibiotics are given indiscriminately, death may result because the antibiotic killed the normal bacteria in the gut which led to an overgrowth of deadly bacteria.

Diarrhea - True diarrhea is not common in the rabbit. This is a condition where all stool being passed is in a liquid form. This is usually a very serious condition and should be seen by your veterinarian immediately. Some serious gastrointestinal conditions that result in diarrhea can be fatal in less than 24 hours.

What most people refer to as diarrhea, is an intermittent passing of soft liquid or pudding-like stools. The rabbit will also pass normal formed stools. The soft stools may be seen more frequently at certain times of the day (many times overnight) and may have a strong odor and accumulate on the rabbit's fur. The liquid stools are actually the cecotropes (see section on Night Droppings) that are unformed. There are a variety of reasons for this condition, but by far the most common reason is a lack of sufficient fiber in the diet and obesity. Eliminating the pellets from the diet and feeding good quality grass hay only for one to three months may clear up the problem. Consult your veterinarian if your pet has this condition before making any drastic changes in the diet.

A good publication that is well written and of interest to the house rabbit owner is the House Rabbit Journal. Write to House Rabbit Society, 1615 Encinal Ave., Alameda, Ca. 94501. We recommend the House Rabbit Handbook, available for sale at our office. Also contact the Chicago Area Chapter of the House Rabbit Society at 708-831-2691 if you are interested in helping out the organization with providing foster homes for bunnies, adopting bunnies, receiving their newsletter or just general support.

Above all, enjoy your pet and give him or her your love and affection. Your pet deserves it and he or she will repay you with years of enjoyment and the opportunity to see life at a slower, calmer, "bunny pace".

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