

## SMALL MAMMAL HEALTH SERIES

By Susan Brown, DVM

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### Rabbit Care

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 reported. The following information is provided to help you enjoy a happy, healthy relationship with your little friend. In addition to this handout there are a number of excellent books on the topic of rabbit health care that you may wish to consult.

#### Diet

Please note that the recommendations for diet in this care sheet are directed towards the pet rabbit and not the production rabbit, such as those raised for meat or fur. The dietary requirement for rabbits in a production situation differs due to the fact that a more rapid than "normal" weight gain body growth is desired

##### *Normal Rabbit Weight*

Unfortunately, what we thought was a normal rabbit weight in the past has often been an overweight rabbit. Obesity is a problem with rabbits that eat a diet too high in calories and that don't get enough exercise. A healthy rabbit should be slim and sleek. You should be able to feel the ribs just under the skin without a thick layer of fat.

The hindquarters should not have any folds of skin covering or interfering with the digestive tract or urinary openings. The dewlaps in females should not be so large as to interfere with grooming or eating. If you are in doubt about your rabbit's proper weight, please consult your veterinarian.



*Photo by Tamara Rees*

##### *Cecotropes*

Rabbits are herbivores with a marvelous gastrointestinal (GI) tract that allows them to extract nutrients from a variety of sources. Rabbits were designed to live on a diet composed of large quantities of grasses and leaves. They also graze on flowers and fruits that can be found at different times of the year. Rabbits are successful at making the most out of the food they eat, food that many other animals could not even digest. One of the keys to their success is the production of cecotropes, which are a type of dropping that is eaten by the rabbit directly from the anus and then digested. These droppings are not made up of waste materials but rather are rich in organisms that have come from the area of the intestinal tract called the cecum. These organisms are packed with nutrients such as amino acids (the building blocks of proteins), fatty acids and a variety of vitamins. In order for the rabbit to get these nutrients, the cecotropes, including the organisms, must be eaten and digested. In this way, rabbits can extract the maximum nutrients from low-energy food materials. They literally produce some of their own food!

Healthy rabbits will eat their cecotropes directly from the anus and you will not see these droppings in the cage. If a rabbit has a medical problem that prevents him from reaching the anus, then you may see cecotropes on the cage floor. Cecotropes are elongated, greenish in color, coated in mucous and have a strong odor. Consult your veterinarian if you see a large number of cecotropes in the cage because your rabbit may be missing vital nutrition. If a rabbit is eating a diet that is too rich in nutrients, such as one that contains mostly commercial pellets, there may normally be a few cecotropes dropped in the cage.

For more information on the workings of the GI tract of the rabbit read [Rabbit Hairballs](#). Cecotropes are a vital part of your rabbit's diet.

### *Grass Hay*

Grass hay is one of the most important parts of your pet's diet. Hay should be provided at all times in your pet's cage. Hay is appropriate for all ages of rabbits, starting at weaning. Hay provides a number of important things for your rabbit's health.

- It is rich in nutrients such as vitamins, minerals, and proteins
- Provides "food" for the micro-organisms that make up the cecotropes
- Provides indigestible fiber that promotes healthy motility (movement of contents) of the intestinal tract
- Provides healthy chewing activity to promote proper wear of the teeth (all rabbit teeth grow continuously throughout life)
- Chewing also provides healthy mental activity, which decreases chewing of inappropriate objects such as furniture and wallpaper
- Provides a full feeling in the stomach that is satisfying and may also prevent inappropriate chewing

Remember that rabbits are designed to live primarily on a diet of grasses and leaves, therefore grass hay can provide a good portion of that diet. There are two basic types of hay available: grass and legume.

- Legume hays are made from alfalfa, clover, peas, beans or peanuts. These hays are loaded with nutrients but have more calories, calcium and protein than a house rabbit needs. Feeding only legume hays may lead to GI disorders and obesity and for this reason we do not recommend feeding these hays. If you mix legume hay with grass hay, the rabbit may only pick out the calorie-rich legume hay and thus overload himself with calories, so we do not recommend mixing grass and legume hay. There are now several online sources of grass hay so even if you live in an area where you cannot get grass hay you should be able to order it online. A small amount of alfalfa hay used as a treat is fine but not used as the routine hay source for the house rabbit.
- Grass hays are made from timothy, meadow, oat, rye, barley or Bermuda grasses. Grass hay availability varies greatly in different areas of the country and the world. You may only be able to obtain one variety where you live. However, if at all possible, try to feed mixed grass hay or provide two or more individual types. Contrary to some sources it is not necessary to only feed timothy hay and it is much preferable to feed a variety of grass hays if available. Grass hays are rich in nutrients but provide the lower energy diet appropriate for a house rabbit. These are the healthiest hays to feed. If you have a choice, choose sun-dried hay which has retained more of its nutrients than commercially dried hay. Do not feed straw. Straw is devoid of most nutrients and although it is not harmful in small amounts, it will lead to serious nutritional deficiencies if it is a major part of the rabbit diet.

Sources for hay include veterinary clinics, horse barns, feed stores, pet stores, rabbit clubs and a growing number of online stores. A few online stores that carry grass hay include the [Oxbow Company](#), [Kaytee](#), and [Sweet Meadow](#). When you buy hay you need to consider the following:

- Buy hay that smells fresh, never buy damp or old hay
- Buy from a reputable source that replenishes the hay frequently
- If you buy from a feed store or horse barn, buy hay that has not been on the top of the pile to prevent contamination with animal or bird droppings.

Hay can be stored at home in a dry place that has good air circulation. Do not close the bag of hay but rather leave it open. Hay can be given to your pet in a variety of ways including in a hay rack attached to the side of the cage, in a box or basket within the cage or exercise area, or even placed in the litter box. Rabbits often pass stools when they are eating and placing some hay in the litter box can help with litter box training. They will not eat soiled hay, so you need not worry about sanitation. Always keep hay in the cage or exercise area and replenish as needed. You can also stuff hay into toilet paper rolls and other hiding areas as a fun way to increase mental exercise associated with foraging for food. Providing a regular source of grass hay is a major key in preventing many diseases in a pet rabbit.

### *Green Foods*

Green foods are the next most important food in the rabbit's diet. Green foods provide all the same benefits listed for hay. They also contain a wider variety of micronutrients and, importantly, provide water in the diet. Even though you may be providing a water container in the cage, rabbits do not always drink as much as they should. Feeding green foods forces the rabbit to take in liquid and thus helps promote healthy GI function as well as kidney and bladder function. You will notice that if you feed your pet a lot of green foods, he will drink very little water, which is normal.

\*Please note: It is NEVER appropriate to feed your rabbit a diet comprised primarily of green foods. The green foods available in the grocery stores do not have enough concentrated calories to sustain a rabbit's normal body weight when this is the primary source of food. Even in the wild a rabbit would eat dried grasses and tree and bush leaves to obtain more calories. Greens are an important addition to the diet, but should never be the total diet.

If your rabbit has never eaten green foods before, it is important to start her on hay first. This will help to make the appropriate changes in the flora of the GI tract, including improving movement and production of cecotropes. In this way you can avoid the problem of soft stools that is occasionally seen when you give greens to a rabbit who has never eaten hay or greens. This is not a dangerous disease; it is only the rabbit's intestinal tract making changes from its sluggish state to a more active state. However, these soft stools can be messy, so making the change to hay first for a month at minimum will avoid this problem. Greens are appropriate for any age of rabbit if the rabbit is already eating hay on a daily basis as mentioned above.

When selecting and using green foods follow these guidelines:

- Buy (or grow) organic if possible
- Wash any green foods first
- Make sure your rabbit is eating hay well first
- Introduce greens a little at a time over several days and watch the stools for any change
- Feed a variety of green foods daily – a minimum would be three varieties – variety provides a wider range of micronutrients as well as mental stimulation for your pet
- Feed a maximum of about 1 packed cup of green foods per 2 pounds of body weight at least once a day or this amount divided twice a day.

Occasionally you may have a situation where a select green food causes a soft stool. You will know if this is the case within 12 hours of feeding the offending food. If you are feeding a variety of greens and are not sure which one is causing the problem, then feed only one green food every 48 hours until the offending food is identified and then simply remove it from the diet. This is not a dangerous situation, but it can be messy and there is no need to give a food that is causing a problem. There are many green foods from which to choose.

There are a huge variety of green foods that you can offer your pet. You might even consider growing some yourself! This would include grass that you grow in your yard but it can only be used if there have been no pesticides or other chemicals used on it. You might consider growing a patch of grass just for your bunnies. And don't throw away those dandelions when you pull them up, if they have not been treated with any chemicals they are an excellent source of nutrition. In general, the darker green a food is, the higher the nutritional value. This is why, for instance, we do not recommend iceberg lettuce. It is not dangerous, but is extremely low in nutritional content. You can use packages of mixed salad greens if they contain dark colored greens and are not comprised primarily of iceberg lettuce or romaine lettuce. Please, no salad dressing!

Here are some of the green foods you might consider:

- Baby greens
- Bok Choy
- Borage Basil
- Broccoli (leaves and top)
- Brussels sprouts
- Cabbage (red, green, Chinese)
- Carrot/beet tops
- Celery (leaves are good)
- Chickory
- Chickory
- Collard greens
- Dandelion greens (and flower)
- Dock
- Endive
- Escarole
- Kale
- Leaf lettuce
- Mustard greens
- Parsley (Italian or flat leaf best)
- Radicchio
- Romaine lettuce
- Swiss chard (any color)
- Water cress

#### *Fruits and other Vegetables (Treat Foods)*

Depending on the time of year, rabbits in the wild would have access to additional foods such as fruits, vegetables and flowers. Since these items do not make up the majority of the diet, we recommend feeding these treats in limited quantities. Another reason for limiting the amount is because some rabbits like these foods so well that they will eat them to the exclusion of all others, thereby creating a potential for health problems. Foods from this list can be fed daily and you may even wish to use them as part of a reward or training system.

**\*TIP:** Find at least one food in this list that your rabbit likes and feed a small amount daily to check on how good your rabbit's appetite is. If your rabbit will not eat her treat food, then there may be other problems brewing and you need to keep a close eye on your pet for health problems.

These treat foods are far healthier (and less expensive) than the commercial treat foods sold for rabbits. Commercial treat foods should generally be avoided because many are loaded with starch and fat and if fed in quantity can cause serious health problems. Read the label on any treat food to make sure the ingredients are not primarily based on grains. Sticking to natural and healthy treats for your pet is a better alternative.

For treat foods, follow the same guidelines listed above for selecting and using green foods with the exception of the amount. You can feed your pet a total of 1 tablespoon per 2 pounds of body weight per day of any combination of the foods below:

Apple  
Bean or alfalfa sprouts  
Blackberries  
Blueberries  
Cactus fruit  
Carrots  
Cherries  
Cranberries  
Edible flowers from the garden (organically grown and NOT from a florist) such as roses, nasturtiums, day lilies, pansies and snap dragons  
Green or red bell peppers  
Kiwi Fruit  
Mango  
Melons  
Papaya  
Pea pods (flat, NO peas)  
Peach  
Pear  
Pineapple  
Raspberries  
Squash

Dried fruit can be used as well, but since it is so concentrated, use only one third the amount as fresh. Instead of one tablespoon use one teaspoon. We do not recommend feeding bananas and grapes as rabbits sometimes become "addicted" to these foods. If you chose to feed them, watch your pet carefully to ensure that he is also eating sufficient quantities of green foods and hay.

#### *Forbidden Foods*

A diet of grass hay and green foods with small amounts of fruits and vegetables contains all the nutrition necessary for the pet rabbit. Unfortunately there are many commercial treat foods sold for rabbits that contain high levels of starch and fat. In addition, some people still feel that it is necessary to feed rabbits high starch foods such as cereals, cakes and cookies. Although a pet rabbit can eat very small amounts of starchy or fatty foods without ill effect, the problem is that people often feed excess amounts because the rabbits eat these foods so greedily. Our recommendation is to completely avoid high starch and/or fat foods for your pet. In this way you will avoid any potential problems these foods can cause, including obesity and serious GI disease. It is always easier to prevent than to treat a disease.

Examples of high fat and/or starch foods to AVOID include:

Any other grains  
Beans (of any kind)  
Breads  
Cereals  
Chocolate  
Corn  
Nuts  
Oats  
Peas  
Refined sugar  
Seeds  
Wheat

#### *Commercial Rabbit Pellets*

Rabbit pellets should generally only comprise a small portion of a pet rabbit's diet. There are much healthier commercial rabbit pellets available now than we had 20 or more years ago; then all the pellets were alfalfa and grain based and although they did successfully produce fast-growing rabbits

that put on weight quickly, which was the goal of the commercial rabbit industry, we found they caused a number of serious problems for our pet rabbits. The idea of producing a uniform and concentrated food source was not a bad idea but when fed to the exclusion of anything else in the diet we see these problems in the pet rabbit:

- High calorie content can lead to obesity – it's easy to overfeed because the rabbit is always acting "hungry." Unfortunately the concentrated and small form of the pellets does not lead to a feeling of fullness that a diet based on grass hay can provide. Even though rabbits should eat to their caloric needs, in captivity with boredom they will overeat pellets if they are provided free choice.
- Low indigestible fiber content can lead to a sluggish GI tract and eventually more serious GI disease, including complete GI shutdown.
- Doesn't promote normal tooth wear due to the concentrated nature of the food – a couple of chews and the food is pulverized as opposed to the much longer chewing time it takes to break down hay or greens.
- Lack of sufficient chewing activity and a "full feeling" in stomach due to concentrated nature of the food may lead to behavioral problems, such as inappropriate or excessive chewing on furniture, plants, wallboard. This could be likened to a sense of boredom. Rabbits in the wild spend a great deal of their day eating. and pellets can be eaten in a few minutes.
- Concentrated, dry nature of pellets may not promote normal water intake, resulting in potential urinary tract disease. A rabbit's natural diet would not be this consistently low in moisture.

The recommendation for feeding pellets would be that they comprise ideally 10% of the healthy rabbit's diet and maximally no more than 20%. In some cases it may be necessary to feed a higher amount for the following reasons:

- In households where hay cannot be used due to human allergies or unavailability
- To implement a weight gain most often related to a debilitating illness
- When the owners are unable to feed a varied diet of good quality grass hay and a variety of green foods. Pellets will help to cover some of the trace nutrients that might be missed in a restricted diet.
- For female rabbits that are used for breeding during the pregnancy and nursing period. They have a high requirement for calories during these times and it may be necessary to increase pellets during this time period or even to feed them free choice.

When selecting a pellet look for the following:

- 18% or higher in fiber
- 2.5% or lower in fat
- 16% or less in protein
- 1.0 % or less in calcium
- Do not buy pellet mixes that also contain seeds, dried fruits or nuts.
- Buy pellets based on grass hays (timothy, orchard grass, brome, etc) NOT alfalfa hay (your veterinarian can advise you if an alfalfa based pellet is needed for situations in ill animals where weight gain may be needed).

The amount to feed a healthy rabbit would be approximately ¼ cup of pellets per 4 lbs of body weight daily. This can be divided and fed twice a day or all fed once a day. Pellets can even be fed one by one and used in a training program. I recommend 1/4 maximum for other than giant breeds and 1/8 cup maximum for dwarfs, but even less for each if there are medical issues.

NOTE: For rabbits that have chronic GI problems or have issues of excessive weight, it may be preferable to completely remove pellets from the diet. Please consult your veterinarian about changing to this type of diet if needed.

#### *Water*

Water should always be available and changed daily. A dirty water container can be a breeding ground for bacteria. Use either a water bottle or a 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 the water if the taste or color is altered. Please remember that if your pet is eating a large quantity of greens that the water consumption may be minimal.

#### *Vitamins/Lactobacillus/Enzymes*

Vitamins are not necessary for the healthy rabbit. Rabbits will obtain all the vitamins they need from their cecotropes, grass hay and green foods and small amount of pellets. The misuse of vitamins can cause serious disease. If your pet becomes ill, particularly if he/she is unable to eat the cecotropes, then your veterinarian may prescribe vitamin therapy. Do not use supplemental vitamins in a healthy pet. In addition, rabbits on a healthy diet do not need a salt or mineral block.

Lactobacillus or acidophilus are bacteria found in the GI tracts of a number of different species. In some older texts there was a recommendation to feed rabbits yogurt (which contains active cultures of these organisms) to improve the health of the GI tract. However, there is no benefit to feeding these bacteria to the rabbit because Lactobacillus does not hold an important place in the rabbit GI tract and adult rabbits may not be able to adequately digest dairy products. Other products called probiotics, which contain bacteria more specific to the rabbit GI tract, are available but their benefits are still controversial. A rabbit on a healthy diet of grass hay and green foods should be able to maintain a normal population of bacteria without additional supplementation. We do not recommend the routine use of probiotics in the healthy rabbit.

Some older texts recommend feeding digestive enzymes to rabbits to help dissolve hairballs. This is of no benefit to the rabbit because such products do not dissolve hair and the problem is not the hair anyway. (See handout [Rabbit Hairballs](#) for more information on this disease). Although these products will not harm the rabbit, they are of no use.

### **Environment**

#### *Cage*

House rabbits should never be kept completely confined to a cage. Exercise is vital for the rabbit's health. All too often we hear well meaning but poorly informed people describe rabbits as easy to keep because "they can be caged and don't take up much space!" This idea has led to many rabbits being caged most of their lives with the distinct possibility of developing both physical and behavioral disorders. They are designed to run and jump and move about a large area.

To confine a rabbit exclusively to a cage can cause several problems:

- Obesity – caused most often by a diet too high in calories coupled with a lack of exercise
- Pododermatitis – inflammation of the feet caused by sitting in a damp or dirty environment
- Poor bone density - Rabbits that are continually confined to a small cage can exhibit marked thinning of the bones, which may lead to more easily broken bones when handling
- Poor muscle tone - If the rabbit can't exercise, the muscles, including the heart, will be underdeveloped and weak
- Gastrointestinal and urinary function - A rabbit that sits all day in the cage with little exercise can develop abnormal elimination habits.
- Behavioral problems - Continually caged rabbits can exhibit a wide range of abnormal behaviors including lethargy, aggression, continual chewing of the cage bars, chewing fur (obsessive grooming), and destruction of the entire contents of the cage.

A cage can be used as a home base for part of the day or it can be open all the time within an exercise area. The cage should allow the rabbit to stand up on his hind legs without hitting the top of the cage, provide a resting area, and have space for a litter box. It should be easy to clean and indestructible, so metal is probably the best choice. The floor can be solid or wire. (I prefer a combination with each type of flooring available.) Keep the cage in a well ventilated, cool area. Basements are often too damp, which can promote respiratory disease. If you must house your pet in a basement, use a dehumidifier and a fan to improve the air quality. The optimum temperature range for a rabbit is 60F to 70F. When the temperature rises into the mid 70s, you may see drooling and a clear nasal discharge. If temperatures reach the upper 80s and beyond, especially if the humidity level is high, there exists a potential for a fatal heat stroke. On hot days when air conditioning is not available, leave a plastic milk jug filled with frozen water in the cage for use as a portable air conditioner.

Rabbits can be caged outdoors if they are provided with a shelter to protect them from rain, heat and cold. In addition, make sure the cage is secure from predators such as dogs, coyotes and raccoons and is kept clean so it won't attract parasitic insects. In the winter, use straw bedding in the sheltered area for insulation and make sure that the water bowl is changed daily. Your pet can dehydrate rapidly if the water is frozen for more than a day.

#### *Exercise Area*

It is vital to the health of your pet to provide an exercise area where your rabbit can roam for a few hours every day. The easiest way to accomplish this is to use exercise fencing panels sold for dogs. These can be found at most pet stores. Buy fencing that is at least three feet high for small and medium rabbits and four feet high for giant breeds. These panels are easily put together with metal pins and can be configured to any size or shape needed. The pen keeps your bunny away from furniture, electrical cords and toxic materials.

The pen can also be used outside as a moveable enclosure to allow your pet access to grassy areas. Never leave a rabbit outside in a pen unsupervised because dogs, cats and raccoons may be able to knock down the fencing or climb over it and harm your pet. Indoors, if you need to protect the floor under the pen you can use a sheet of no-wax flooring, which is available at most hardware stores. It can be easily cleaned and rolled up when not in use.



*Photo by Tamara Rees*

If you are going to allow your pet free access to your house you need to bunny-proof it. Block all escape routes, cover or block access to electrical, phone and computer cords, cover furniture to protect it from the rabbit's teeth and claws and remove access to toxic plants, rodenticides, insecticides and other toxic materials.

#### *Litter Box*

Rabbits can be litter box trained relatively easily. When beginning training, confine 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 for her toilet. 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 droppings in the litter box. Some people have also



found it helpful to put some hay in the box to encourage defecation there as rabbits usually pass stool while they are eating. In exercise areas, provide one more litter box than the number of rabbits you have and put newspaper or plastic under the litter box to protect your floors from accidents. Never punish your pet while in the litter box.

Pelleted litter makes the best bedding and is preferred over wood shavings, corncob and kitty litter. Pelleted litters are non-toxic and digestible if eaten, draw moisture away from the surface which keeps it drier, control odor well and can be composted. Do not use clay or clumping kitty litter. We have had cases where rabbit ate these products and died from an intestinal impaction. There are a wide variety of pelleted beddings available through pet stores, veterinarians and rabbit clubs. (I like softer litter than pelleted, especially in buns that spend a lot of time in the litter box.)

### *Rest/Hide Area*

The ancestors of our pet rabbits would have spent a good portion of their day in protected underground burrows. Our pet rabbits retain the same need to have a protected area in which they feel safe and secure. Some rabbits are content to sit in a box full of hay, others like a completely enclosed box in which to hide. Try providing places to hide, such as untreated wicker or straw baskets, litter pans or other shallow boxes filled with hay, cardboard boxes with an entrance hole and the bottom removed, or large cardboard tubes. (Don't forget the new Oxbow structures, which can be used as edible toys as well.)

Use your imagination! If the cage has a wire floor, provide a solid area on which the pet can rest. Use material that is washable or disposable and absorbent. Some examples might be fake fleece (not long fur) found in fabric stores or absorbent baby blankets (not terry cloth towels). Do not use carpet squares because they are not absorbent, they are abrasive to the feet, and they can not be thoroughly cleaned. (Also carpet can be eaten, which is the number one cause of obstruction.)

### *Toys*

Rabbits get a fair amount of mental exercise from their diet of grass hay and green foods, but additional toys are appreciated. Rabbits like to chew, so give them branches from untreated trees (dry the wood for at least a month to prevent any adverse reactions to the sap), wooden chew toys designed for birds, or unfinished unpainted wicker or straw baskets. They like things that make noise such as keys on an unbreakable key holder, empty plastic or metal cans, hard plastic baby toys and jar lids. They like things that both move and can be chewed such as toilet paper or paper towel rolls, small empty cardboard cartons and small piles of shredded paper. To make a toy more interesting, you can hide in it healthy treats, as described in the diet section, or stuff hay in hiding areas, toilet paper rolls and old tissue boxes. Giving the rabbit a sense that he or she is foraging for food is an excellent mental activity. They like air-filled balls they can nose around.

## **Handling**

There are a number of ways to pick up your pet depending on how calm she is and her size. The main thing to remember is to always support the hindquarters to prevent serious spinal injuries. Rabbit backbones are fragile and can 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 euthanasia, so prevention is the best policy. Never pick up a bunny by her sensitive ears because it's 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 she jumps out of your arms there isn't a chance for a fall.

Ask your veterinarian or an experienced rabbit handler about other methods used to handle rabbits. Some restraint methods are particularly useful when your rabbit needs to be medicated. Wrapping your pet securely in a towel is one easy method and your veterinarian can instruct you on the proper procedure.

## **Medical Problems**

We have many handouts available that cover medical problems encountered by pet rabbits in detail. I encourage you to ask your veterinarian for information on a specific topic that interests you. As mentioned before, the number one group of diseases that we see in rabbits is caused by an inappropriate diet and is often preventable. The following is a brief discussion of a few of the medical conditions that you should be aware of.

#### *Spay/Castration*

Uterine adenocarcinoma is a malignant cancer that can affect female rabbits over two years of age (although I have seen it in an 18-month old rabbit). The best prevention for this disease is to remove the reproductive organs (ovaries and uterus) in a surgical procedure commonly called a spay. The procedure can be performed in females over four months of age. Spaying a rabbit also prevents pregnancy and can help control some aggressive behavior.

Male rabbits can also develop disease of the reproductive organs (the testicles) but with much less frequency than females. However, some male rabbits have a tendency to become aggressive in their adolescence (8-18 months of age) and can also start spraying urine on vertical surfaces outside the toilet area to mark their territory. Surgical removal of the testicles, called castration, can control these behaviors if it is done before the behavior occurs or shortly thereafter. Male rabbits can be neutered anytime after four months of age.

Consult our handouts entitled: [To Neuter or Not to Neuter](#) and [Taking the Fear out of Rabbit Anesthesia and Surgery](#) for more information on this topic.

#### *Dental Disease*

Dental disease can be the result of a variety of factors including trauma to the face, genetics (jaw is too short or malformed such as seen in the lop-eared breeds of rabbits), nutritional disease, infectious disease and diet. Rabbit ancestors ate a diet that was tough and abrasive, therefore they developed teeth that grew throughout their lives. Without this constant dental growth, the teeth would wear down quickly and the rabbit would be unable to eat and eventually die. Any condition that causes a rabbit's teeth to be worn down improperly or causes mal-alignment can result in serious dental disease.

The best prevention for dental disease is a healthy diet including grass hay and green foods. But even with this good diet, some rabbits develop disease due to other factors, particularly genetics. The treatment of dental disease is based on the cause and severity of illness. Your rabbit should have a dental examination performed by a veterinarian at least once a year. You should never attempt to trim a rabbit's overgrown teeth without consulting your veterinarian. An improperly performed tooth trim can lead to serious dental disease. Consult our [Rabbit Dental Disease](#) handout for more information.

#### *Loss of Appetite*

Rabbits are little eating machines and if you notice that your pet has changed his eating habits, there is cause for concern. The most common reason a rabbit stops eating is in response to pain. If every day you give a small amount of a healthy treat that your rabbit loves, as outlined in the Diet Section, you will quickly know when your rabbit's appetite is changing. The rule of thumb regarding the seriousness of the loss of appetite is:

- Loss of appetite but otherwise acting normal should be investigated within 48 hours. Some rabbits may go through a slow down and then pick up again in a day. The key here is that the rabbit is still active and alert, and is still producing stools
- Loss of appetite accompanied by obvious lethargy or depression should be considered an emergency and should be investigated immediately. This can be a sign of an intestinal obstruction or toxin ingestion. Another important sign is that no stools are being produced.

#### *Respiratory Signs*

Rabbits can exhibit sneezing, coughing and excess tearing. Not all these signs are related to respiratory disease. Common environmental causes include perfumes, sprays, cooking fumes,

ammonia fumes from accumulated urine in toilet area, fabric softener on bedding, dust, poor air circulation, damp environment and hot environment. Dental disease can also cause signs that may mimic respiratory disease, such as excessive tearing that stains the eyes. Please consult your veterinarian if your pet is showing these signs.

#### *"Hairballs"*

Hairballs are often cited as a reason for rabbits to stop eating. The problem is not hair in the stomach (which is always in a normal rabbit's stomach due to grooming) but abnormalities in GI tract motility. A rabbit on a healthy diet with lots of grass hay and other foods as described in the diet section will not have a problem with hairballs.

The only exception is that, rarely, longhaired breeds of rabbits such as Angoras and Jersey Woollys, can accumulate an abnormal amount of hair in their stomachs even if they are on a good diet. Brush these breeds regularly to prevent the ingestion of large amounts of long hair. Remember that these rabbits do not have the normal rabbit haircoat of the ancestral rabbit so we humans have artificially created this problem! Consult our handout on [Rabbit Hairballs](#) for more information.

#### *Diarrhea*

True diarrhea, where all the stool being passed is purely liquid, is rare in the pet rabbit eating a healthy diet. More commonly we see a situation where the rabbit has both normal and soft pudding-like stools in the toilet area. This is not diarrhea, but a problem with GI motility usually caused by an inappropriate diet. You can read more about this in our handout [Intermittent Soft Stools in Rabbits](#).

If you should notice true diarrhea in your pet, you should consider it an emergency situation and consult your veterinarian immediately.

#### *Urinary Disease*

The normal color of rabbit urine can range from yellow to dark orange-red. The color comes from plant pigments in the food or from normal pigments produced in the wall of the bladder. The urine can be clear or cloudy with a white precipitate. The white precipitate is excess calcium excreted through the urine. Rabbits can develop disease of the bladder or kidneys and may exhibit signs such as blood in the urine, straining to urinate, inappropriate or frequent urination, or the complete inability to urinate. If your pet is exhibiting any of these signs, consult your veterinarian immediately.

The best prevention for urinary disease is an adequate water intake, which is accomplished through the feeding of green foods and providing fresh water daily. See our handout [Bladder Stones and Bladder Sludge in Rabbits](#) for more information.

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