

# Allen County

## Pet Rabbit

### Resource Manual

## PART I - Beginner

### Feeding your Pet Rabbit

Fiber is vital for normal function of the digestive system and a diet of fresh grass hay and vegetables should make up the bulk of the house rabbit's diet. Feeding a diet of mainly pellets may cause the rabbit to become obese and increase the likelihood of the rabbit having stomach problems. Fiber also aids in the prevention of hairballs, so if your rabbit is long-haired, like an angora, this could be very important. The addition of some pellets into the diet aids in the balance of the diet.

**Hay grasses** such as Timothy should be available at all times. Some rabbits may not like it at first but keep giving it to them. Adding fresh hay a couple times a day and reducing the pellets may help because if your rabbit gets hungry enough it will eat it. It is recommended that baby rabbits be started on alfalfa hay and introduced to other grasses by 6 to 7 months. Alfalfa is higher in calcium and protein and lower in fiber than the grass hay.

**Vegetables** should make up a large portion of the rabbit's diet depending on the size of your rabbit, 2 to 4 cups of fresh vegetables should be given per day. A variety must be fed daily to ensure a balanced diet. If your rabbit is used to eating mainly pellets you must change it gradually taking away more and more pellets each day so not to upset the stomach of your rabbit. Only add one new vegetable in their diet at a time so if the rabbit has diarrhea or other problems you can tell which vegetable is the culprit and not use it again. Some suggestions for rabbits are carrots, carrot top, parsley, broccoli, collard greens, mustard greens, turnip greens, endive, Romaine lettuce, kale, and spinach. Iceberg lettuce has almost no nutritional value and should be avoided. Rhubarb should be totally avoided because of the toxicity. You should wash the vegetables you feed your rabbit very well.

**Pellets** are basically designed for commercial rabbit production, and are quite high in calories. As a result, house rabbits that are fed unlimited pellets may become overweight. They do have a place in a rabbit's nutrition as they are rich and balanced in nutrients, but it is recommended that they be restricted and only compensate for the lack of fresh vegetables for a limited time. For adults, amounts should be carefully regulated depending on the size of the rabbit. As a rule, use about a quarter cup for rabbits 5 to 7 pounds, a half a cup for a rabbit that is 8 to 10 pounds, and three quarters of a cup for a rabbit that is 11 to 15 pounds.

**Treats** are recommended but only one or two tablespoons of fresh fruits should be given daily as a treat. Treats sold in pet stores marked for rabbits are generally unnecessary and in some cases can cause digestive problems due to the high carbohydrate or sugar content of the food. Consider offering treats of twigs from an Apple or willow tree. Remember, all treats need to be pesticide free.

# Feeding Activity 1

Find these words  
in the Word  
Search

Alfalfa

Pellets

Water

Hay

Timothy

Carrots

Lettuce

Treats

Vegetables

O P V O W L S P T D G F A K Q  
H A A F Z N W E X S N Y Q Q P  
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Y A F P N S V H L S W A T E R  
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# Feeding Activity 2

What are some foods and treats your rabbit eats? Are there any foods your rabbit doesn't like?

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# Time to Care for your Pet Rabbit

When choosing to do a pet rabbit project, you need to think about the time it will take to care for your animal. How much time will it take to feed, clean, and play with your rabbit should all be taken into consideration.

## Time Activity 1

In the space below, draw a picture or diagram that depicts how much time in the day that you will spend feeding, cleaning and playing with your rabbit.

## Time Activity 2

Sometimes there will be times that you cannot take care of your rabbit because of school, family vacations or illness. You should always have a plan in place for such times. Explain how you will plan for these things including who will take care of your pet rabbit and when they will do it.

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## Time Activity 3

Make a list of three ways you can play with your rabbit. Take a picture or draw and put it in the space provided.

- 1.
- 2.
- 3.

Attach photo or drawing here.

# Litter Box Training your Rabbit

Rabbits usually take well to litter training, although you need patience. First you will need litter for your pet rabbit. They will like to lay in the litter box and possibly eat the litter so therefore it needs to be a safe litter for the rabbit. Do not use clay or clumping litter such as cat litter for your rabbit. Nor use wood shavings. Paper-based pellet litter is the best choice.

For a litter box, cat litter boxes work fine but you can use smaller boxes such as a cake pan or plastic washtub. Make sure your rabbit is able to get in and out of the litter box comfortably. Experiment with what you use for litter pan until your rabbit is able to use the litter pan without assistance from you.

## Tips for Litter Box Training your Rabbit

Confine your rabbit into a well supervised area.

Use a litter box first in his or her cage. Take a note were the rabbit is using it and how he is using it. If he is using another part of the cage move the box to another part of the cage. Flexibility is key in the placement of the litter box inside and out of the cage.

Once the rabbit is using the litter box in its cage, allow the rabbit out of the cage in a limited area and provide a litter box in this area. Watch your rabbit for signs that he needs to urinate. You may have to keep moving the box. Over time your rabbit will develop a preference of using the litter box because of the freedom it gives him. Never allow the rabbit freedom of your house without any supervision.

## Litter Box Training Activity 1

What are some options you have that you can try while litter box training your rabbit?

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## Litter Box Training Activity 2

What advice would you give to a friend who is litter box training a new pet rabbit?

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# Breeds of Rabbits

Rabbits have found their way into most regions of the world except Antarctica. Actual domestication and breeding in captivity probably started in monasteries around the 16th century.

The French Lop is believed to be a cross between an English lop and a Flemish giant. The breed as it is known today has been around since the 1800s. A full-grown male will weigh 10 pounds or over and the female can weigh 11 pounds.

The Dutch is believed to have originated in Holland. The breed is very old and is the most popular breed in America. Colors for the Dutch include black, blue, chocolate, gray, steel, and tortoise all with white in specific patterns.

The Dwarf Hotot originated in Germany. This rabbit is totally white except for a black band around the eyes. Adult male and female should weigh 2 1/2 pounds

The Flemish Giant comes in black, blue, fawn, light gray, Sandy, steel gray, and white. There is a lot of controversy about where this breed originated. Some people believe that it came from Belgium, but there are very few actual records. The breed has been in Europe for several hundreds of years without documentation. This breed is considered a superheavyweight of rabbits. Adult males usually weigh a minimum of 13 pounds while a female usually weighs a minimum of 14 pounds.

The New Zealand comes in three colors: black, red, and white. This is an all-American breed of rabbit. The red became known in the US first in 1912 with the black and white following in the 1920s. The adult male will usually weigh 10 pounds with the adult female usually weighing in at 11 pounds. The Netherland Dwarf comes in many colors and varieties. This rabbit came about by accident by crossing a Polish with a small wild rabbit in the Netherlands. They have been very popular before Britain imported the breed in 1948. The adult male should weigh 2 pounds and the adult female should weigh approximately 2 1/2 pounds

## Breeds Activity 1

What is your favorite breed of rabbit? What interesting facts do you know about that breed?

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## Breeds Activity 2

Do some research on your rabbit's breed. Briefly describe some of your findings here:

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# Sources

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# PART II - Intermediate

## “Rabbit Proofing” for Pet Rabbits

Since rabbits are chewers, enjoy small, dark spaces and are very inquisitive are all very good reasons to “Rabbit Proof” your house prior to allowing your rabbit access to your home. Rabbit proofing your home will protect your rabbit and your belongings. You need to get down on the floor and crawl around looking for all the places you have that your rabbit would enjoy exploring and chewing on. Rabbit proofing your home will be absolutely necessary if your rabbit will be in your house outside of their cage. One idea would be to set up an indoor fenced exercise area for your rabbit, so your rabbit proofing does not need to be quite so intense.

**Here are some things you need to pay particular attention to when you are Rabbit Proofing your home:**

**Electrical and other cords:** Rabbits love to chew on electrical cords. This is extremely dangerous for your rabbit because it can cause severe burns or even electrocution. Some examples of cords would include phone, computer, stereo, cable TV and appliance cords. Solutions would include spiral cable wrap. This is a flexible plastic sheath that can be wound around the cords. Some rabbits may still try to chew through this though. Another alternative would be cord concealers which are hard plastic and come in various colors and sizes. These are usually applied to the area above the baseboards. Another suggestion would be PVC pipe or polyethylene hard tubing. A slit can be cut through the pipe or tubing. The cord then slips inside. You can even buy the tubing that is already split. Simply raising the cords above the floor level may not work. A rabbit sitting on their hind legs can reach a foot or more in the air. Placing cords behind furniture may not prevent your rabbit from reaching them either since they can burrow into small areas behind furniture. Bitter sprays also do not work because some rabbits like bitter tastes.

**Wood furniture and baseboards:** The basic instinct of a rabbit is to chew wood. Your rabbit needs to chew to keep their teeth from growing too long, but you don't want your rabbit chewing on your wood furniture. Here are some solutions to keep the furniture in your house safe while your rabbit is out exercising. One solution is to use PVC pipe or hard tubing and place it around the wood part of your furniture. Another solution would be to place boards that you will allow your rabbit to chew in front of the furniture and baseboards. Another alternative would be to provide a variety of chew toys as alternatives to chew.

**Upholstered furniture:** Rabbits can get underneath your upholstered furniture and chew on the underside and then climb into the hole they created. You need to use caution with recliners since rabbit may get underneath them and into the mechanism. You always need to know where your rabbit is before you raise or lower the recliner. You can also place a wooden frame or a frame made with PVC tubing under the furniture, blocking the rabbit access underneath the furniture. The frame can be stained and made slightly smaller than the base of the furniture to make it blend in. Another suggestion would be to purchase clear plastic carpet runners with the small spikes on the bottom. You can discourage your rabbit from hopping over to the upholstery by placing the runners, upside down, near the furniture.

**Carpet and drapes:** Some rabbits love to chew on carpets. They usually start to pull up or chew on carpets in the corner of the room. You can protect the carpet in those areas most likely to be chewed by covering them with wood you don't mind your rabbit chewing. With drapes either select a size that is short enough that the rabbit can't reach them even with they are standing up on their hind legs. Another suggestion is to tie them up high enough when your rabbit is out. Also make sure you put the drapery cords up where your rabbit can't reach.

**Books, newspapers and magazines:** To prevent your rabbit from chewing on books, newspapers and magazines put a glass front on book cases or place them in chew proof bins, either hard plastic or metal. Another suggestion would be to place these items on a shelf high enough that they can't reach them. Make sure that if you give your rabbit one of these to chew on that it has soy based ink.

**Closets:** Make sure to always shut closet doors. Items in closets pose great chew items for your rabbit that can be harmful. Another potential hazard to your rabbit is that the rabbit could be locked in the closet when the door is inadvertently closed locking your rabbit in where food, water and a litter box are inaccessible.

**Kitchen area:** Hazards include but are not limited to open cupboards and drawers, open areas on the back of appliances and toe kicks on lower cupboards are places that may look inviting to a rabbit. Some solutions would be to make sure cupboard doors and drawers are always closed. Use childproof latches to keep doors and drawers closed. Block off any open areas in the cabinetry and finally block off areas around appliances to prevent the rabbit from getting behind them.

**Food:** Food not intended for a rabbit, i.e.: other types for pet food, grocery bags of food, waste baskets containing food items and food set out on low tables. Solutions would be to use covered waste baskets the correct size for the use. Keep foods at least 2 feet off the ground. You also need to keep ashtrays out of the reach of the rabbit. Cigarettes and cigars are toxic to rabbits and should never be placed where a rabbit would have access to them.



Cleaning supplies: Cleaning chemicals even if they are in a closed container since rabbits can chew through the container need to be placed out of reach of your rabbit. Detergents, rags, sponges and rubber gloves are all dangerous to your rabbit too. You need to make sure to keep cleaning items in high cupboards. Use childproof latches to secure the doors of lower cupboards and remove your rabbit from the area when you are using the cleaning supplies.

Plants: Some common houseplants can be poisonous to rabbits. Even if they are not poisonous to your rabbit they will chew and dig in them. Make sure to put plants out of reach of your rabbit by using hanging baskets and hanging them from the ceiling or placing them on tables several feet high.

Fireplaces, space heaters and candles: These can all be very dangerous to your rabbit since they can be burned by them or they could tip them over and start a fire. You should never leave your rabbit unattended in a room with an open flame or space heater. Use screens or glass doors on the fireplace to prevent sparks from coming into contact with your rabbit. Barriers should be placed around hot wood stoves.

Fans and air ducts: These can both be dangerous to your rabbit. The rabbit could stick their ear or nose in the fan and be seriously injured. The rabbit could also knock over the fan causing injury. You should never place a fan within reach of your rabbit.

Open exterior doors and windows: These can provide an easy escape for your rabbit. Keep screens on all windows and doors. If the door needs to be propped open make sure your rabbit is in the cage.

Find these words in  
the Word Search

BASEBOARDS

BOOKS

CANDLES

CARPETS

CLOSETS

CORDS

DOORS

DRAPES

DUCTS

FANS

FIREPLACES

FOOD

FURNITURE

HAZARDS

HEATERS

MAGAZINES

NEWSPAPERS

PLANTS

WINDOWS

## Rabbit Proofing Activity 1

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## **Rabbit Proofing Activity 2**

Name 8 ways to rabbit proof your house

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

## **Rabbit Proofing Activity 3**

List 5 reasons why you should rabbit proof your house

- 1.
- 2.
- 3.
- 4.
- 5.

## **Rabbit Proofing Activity 4**

List 5 hazardous items in your house to your rabbit:

- 1.
- 2.
- 3.
- 4.
- 5.

# Pet Rabbit Exercise

Exercise is very important to the overall health of your pet rabbit. It promotes good overall health and prevents obesity. Providing your rabbit with exercise will ensure proper respiratory and cardiovascular function, as well as promote muscle development. Rabbits love to jump, explore and maneuver through obstacles. Tunnels, ramps and jumps are all great ways to exercise your rabbit. It is also another way to bond with your rabbit. Rabbits need lots of stimulation both physically and mentally. When a rabbit gets bored they can get into mischief and display unwanted behaviors.

You need to allow your rabbit to exercise 2-5 hours a day but you have to keep your rabbit in an area where he/she will be safe and not get into something that can harm him/her. Unless you have trained your rabbit not to chew on your belongings and your house is not bunny proofed, never let your rabbit out of your sight. See the next section on how to "Pet Proof" your house or the area where you are going to let your rabbit have free rein to play and exercise outside of his/her cage. They can get into trouble very quickly because their natural instinct is to be inquisitive. Your rabbit loves to play with toys both when allowed out of the cage and while in the cage. Some examples of some toys would be a box he/she can jump on, a small, plastic slinky he/she can throw, a cardboard toilet paper roll stuffed with hay he/she can dig at. A washed out aluminum can he can kick is also another great toy. Make sure there aren't any sharp edges to the can though. You need to switch the toys around frequently so he/she doesn't get bored with the toy and decide to find a toy that you don't find acceptable. If your rabbit is a digger then allow your rabbit to play in a sandbox. You can fill a plastic dishpan 1/3 full with sand and sit back and watch your digging playmate to have some fun safe exercise. Chew toys are also a great way for your rabbit to get mental stimulation. This will also deter him/her from chewing on your furniture. Chew toys also help with the natural growth of his/her teeth. Getting down on the floor and playing with your rabbit is an excellent way to bond with your rabbit.

On nice sunny days where there isn't much wind you should take your rabbit outside to play. This gives your rabbit a new environment to roam around and explore. When exercising your rabbit outdoors, ensure it is in a secure area and cannot escape through a small opening or hole or by digging. The location should be free of potential predators, such as dogs, cats, birds of prey and wild animals. Do not let your rabbit out in an area where he/she can nibble on poisonous plants or where the grass and foliage have been sprayed with pesticides or fertilizers. Exercise pens designed for dogs or small children is a great way to let your rabbit out of his/her cage and be in a safe, controlled environment. You still need to make sure to supervise your rabbit at all times while out of his/her cage.

Rabbits need regular exercise to stay fit and healthy. This is part of their natural behavior. If they don't get enough exercise or stimulation everyday they will soon become lethargic and dispirited. By letting him out of this cage not only will you have a happy, healthy rabbit but you will see the character blossom.

Training your rabbit to walk with you is a good way to bond with them and to let them exercise and explore their surroundings. Before going on the first walk with your rabbit, fit the harness to make sure it will not harm the rabbit. These harnesses can be purchased at your local pet store, and even small dog and cat harnesses may work. Never use a collar on your rabbit as this can pull on the rabbit's neck leading to damage of the rabbit's throat and trachea. Before going on the first walk, make sure the rabbit is accustomed to the harness and has ample time to learn how to walk on it to avoid potential harm while on your walk.

Rabbits can be severely affected if they do not have proper exercise. These problems are things such as obesity, porodermatitis (sore hock), poor bone density, poor muscle tone, and behavioral problems.

Ways to encourage exercise are things such as: exercise pen, short periods of confinement, toys, foraging, digging box, and training your bunny.

# Exercise Activity 1

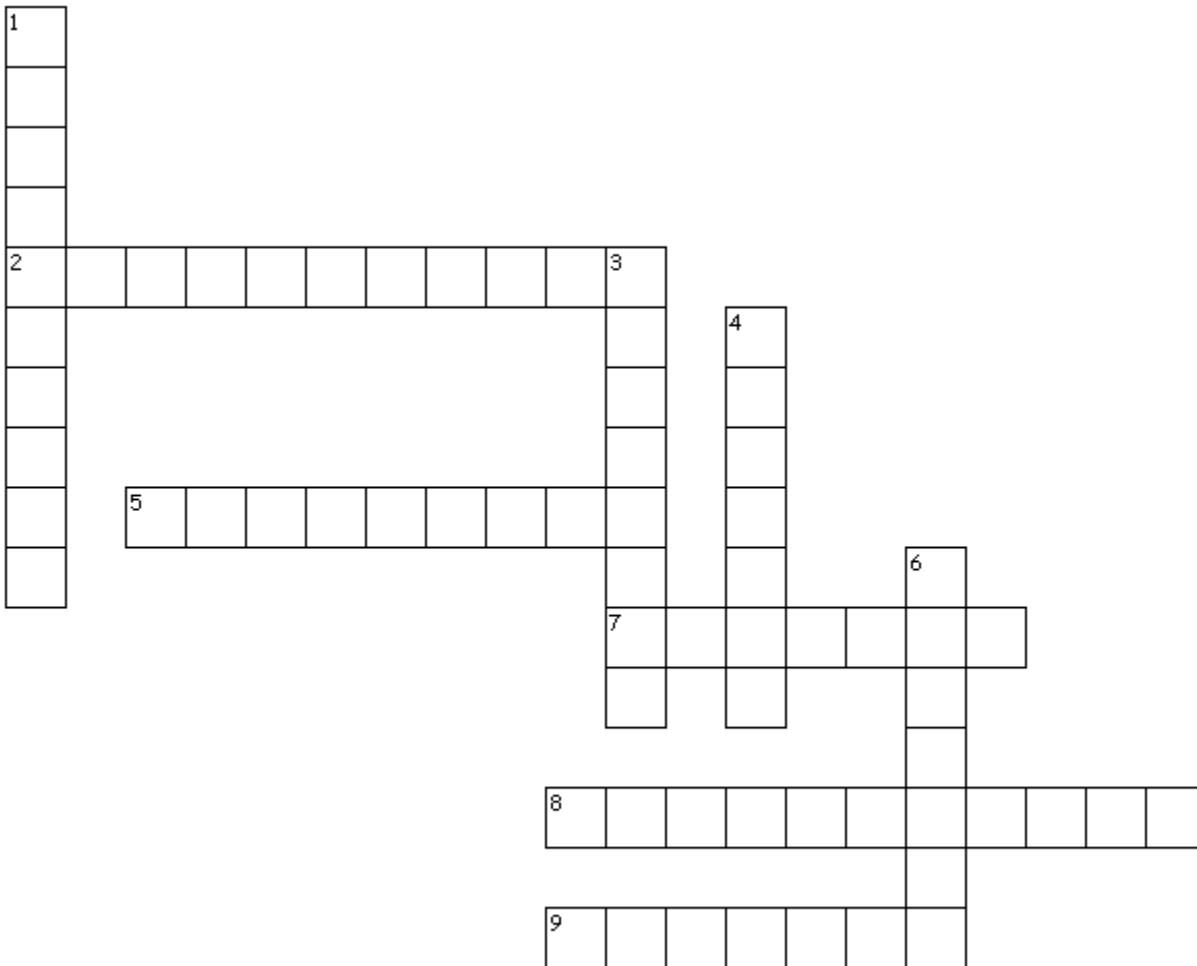
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CARDIOVASCULAR  
EXERCISE  
HEALTH  
OBESITY  
RESPIRATORY

DEVELOPMENT  
EXPLORE  
JUMP  
OBSTACLES  
TOYS

DIGGING  
FORAGING  
MUSCLE  
PORODERMATITIS

## Exercise Activity 2



### Across

2. What is a natural instinct of your rabbit?
5. What happens to your rabbit if it doesn't get enough exercise?
7. If your rabbit is a digger what should you give your rabbit to promote digging?
8. What does your rabbit need a lot of?
9. What is one good way to exercise your rabbit?

### Down

1. What should you avoid while outside with your rabbit?
3. What does your rabbit need to stay fit and healthy?
4. What is a good way to bond with your rabbit?
6. What should you never use on your rabbit?

## Exercise Activity 3

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## Exercise Activity 4

What does exercise ensure?

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# Nutrition for Pet Rabbits

Nutrition is an essential element in keeping your rabbit happy and healthy. Rabbits have very sensitive stomachs and need fiber-rich, nutritional food to keep their stomachs in great working order.

Rabbits need a good quality pellet which contains 18 – 20% crude fiber, 16 – 20% protein, phosphorus, calcium and vitamins. The American Rabbit Breeders Association recommended serving size to give your rabbit is 2-3 oz per day for small breeds, 6-8 oz per day for medium breeds and 8-10 oz per day for large breeds.

Pellets are most important in the younger stages of your rabbit's development because they are highly concentrated in nutrients which helps ensure proper weight gain. As your rabbit reaches maturity pellets should make up less of the diet. It should be replaced with higher quantities of hay and vegetables. Overfeeding pellets in mature rabbits can lead to obesity other medical conditions.

If you have to change your rabbit's pellets start with a ratio of 90% current pellets and 10% new pellets to see how your rabbit tolerates the new mixture. If he likes it and his droppings are looking solid, then increase the mixture to 80%-20% for a few weeks. Keep increasing the new pellets until 100% are introduced. Keeping the pellets in the refrigerator keeps them fresher longer. Rabbits also need fruits and vegetables to supplement their diet.

Here is a list of some fruits to give your rabbit as a treat: These treats should be given sparingly because of their calorie content.

- Apples and pears: without the seeds as the seeds are poisonous to rabbits.
- Grapes
- Oranges
- Strawberries
- Cherries
- Raspberries
- Blueberries
- Melon
- Mangos
- Tomatoes
- Papaya and pineapples are great to give too because the enzymes in these fruits help eliminate fur-balls.

Avocados are toxic to rabbits so should never be given to your rabbit.

Rabbits have delicate digestive systems so only give your rabbit a few pieces to see if they like it. Another reason you don't want to give your rabbit to many fruits at a time is because it may cause your rabbit to have a loose stool. As your rabbit's system becomes used to the new treat you can increase the portions. If your rabbit develops a loose stool, stop the treat until the droppings are back to normal and then reintroduce the treat to them more slowly. A suggestion would be to give it to them twice a week or every other day. A recommended serving size is a tablespoon per day, per 5 pounds of weight.

Hay is very important to your rabbit's diet and they should have fresh hay available 24 hours a day. It is high in fiber which helps the digestive system. Hay will also help eliminate fur-balls and other blockages throughout the body. Rabbits cannot vomit up the fur-balls like cats so this is where the high-fiber foods help eliminate them. The best type of hay to feed your rabbit is grass hay or Timothy hay. Timothy hay can be fed in loose bundles in a basket where as alfalfa hay can be given in pressed-cubes. Alfalfa hay is higher in calories so it should be given in smaller amounts. It also has too much calcium and can cause your rabbit to gain weight. Giving alfalfa hay in cubes helps you control the amount that you feed your rabbit. Rabbits less than 7 months old may have alfalfa hay, but older rabbits should have grass hay such as timothy or oat hay.

Vegetable do's and don'ts to feed your rabbit:

Iceberg lettuce has no nutritional value for your rabbit. It is the worst type of lettuce you can feed your rabbit. Other choices of nutritional vegetables are green leaf lettuce, romaine lettuce, collard greens, dandelions, carrot tops, spinach, parsley, celery and artichokes. Dandelions are the ones you buy at the grocery store and not the ones you pick out of your yard. The ones you pick out of your yard might have chemicals on them that can poison your rabbit.

Kale, mustard greens and spinach contain high levels of oxalates which can accumulate in the system and cause toxicity over time. Rather than eliminating these vegetables from your list, because they are highly nutritious and most rabbits love them, limit the use of them to 1 or 2 meals per week.

The vegetable with the best nutrition for your rabbit is dark green leafy vegetables. As early as 3 months old, you can begin to offer vegetables to your rabbit. Introduce new vegetables one at a time so if a digestive upset occurs you know which food may be the culprit. Eliminate those that cause loose stools or diarrhea. Continue to add new varieties including both dark leafy vegetables and root vegetables of different colors. Once your rabbit is used to several different vegetables feed him at least 3 different kinds daily for a mix of nutrients.

<b>A Good Rabbit Diet Should Include Daily Fresh Vegetables</b>	
<b>Include a variety of vegetables from the list below. (Those containing a high level of Vitamin A are indicated by an *. Feed at least one of these each day.)</b>	
<ul style="list-style-type: none"> <li>• Alfalfa, radish, and clover sprouts</li> <li>• Basil</li> <li>• Beet greens (tops)</li> <li>• Bok choy</li> <li>• Broccoli (mostly leaves/stems)*</li> <li>• Brussels sprouts</li> <li>• Carrots and carrot tops*</li> <li>• Celery</li> <li>• Cilantro</li> <li>• Clover</li> <li>• Collard greens*</li> <li>• Dandelion greens (NO pesticides)*</li> <li>• Endive*</li> <li>• Escarole</li> <li>• Green peppers</li> </ul>	<ul style="list-style-type: none"> <li>• Kale*</li> <li>• Mint</li> <li>• Mustard greens*</li> <li>• Parsley*</li> <li>• Pea pods (the flat edible kind)*</li> <li>• Peppermint leaves</li> <li>• Radicchio</li> <li>• Radish tops</li> <li>• Raspberry leaves</li> <li>• Romaine lettuce (NO iceberg or light colored leaf lettuce)*</li> <li>• Spinach*</li> <li>• Watercress*</li> <li>• Wheat grass</li> </ul>

[www.peteducation.com](http://www.peteducation.com)

When introducing your rabbit to a new food or treat do it one at a time in small amounts so their digestive system has an opportunity to adjust to the new food. If you introduce your rabbit to new foods all at once, it could cause digestive problems. A sudden change in your rabbit's diet can wreak havoc with his digestive system and cause him to become very sick.

Rabbits continually groom themselves like cats so it is very important to feed your animal treats to help eliminate fur-balls. Papaya, pineapple, hay, exercise and other high-fiber foods may help eliminate hair blockages that can be fatal to your rabbit. You can also feed your rabbit dried papaya and pineapple which is sold in most local pet stores.

Another treat that can be given sparingly because of the calorie content and the amount of carbohydrates is oats and barley.

Fresh water should be available to your rabbit around the clock. Each day change the water in the dish or water bottle with fresh water. On a weekly basis you need to sanitize the water dish or bottle with mild dish detergent and rinse thoroughly before adding drinking water.

In addition to hay, vegetables and fruits chewing items are also important to your rabbit's dental health. You need to provide your rabbit with chew sticks or gnaw bones of untreated wood of various sizes and shapes. Cardboard tubes and untreated wicker can also be used. A diet that requires little chewing produces uneven tooth wear. This causes enamel to grow on the sides of the teeth. These spikes can cause severe oral pain and excessive salivation or slobbers. They can cause reluctance to chew, inability to close the mouth and reduce food intake. The situation deteriorates as the teeth continue to grow and if it is not treated results in severe malnutrition.

Nutrition through your rabbit's stages of development:

Rabbits need to be fed differently at different stages of their growth to ensure healthy development, digestion and weight. Throughout a rabbits life avoid any sudden changes in diet. New foods should always be introduced gradually.



**Baby rabbits or kits:** Feed solely on its mother's milk for about the first 3 weeks. During the first few days, the milk contains high levels of antibodies that help protect the kit from disease. At about 3 weeks the kit will begin nibbling on alfalfa hay and pellets. At about 7 weeks the kit can handle unlimited access to pellets and alfalfa hay in addition to the mother's milk. Kits are usually weaned from their mother by 8 weeks of age, depending on the rabbits breed.

**Juveniles:** Between weaning and 7 month old the rabbit can have unlimited amount of pellets and alfalfa hay. At about 3 months old you can start introducing small amounts of vegetables into your rabbit's diet. Introduce one vegetable at a time. If any vegetable seems to cause digestive problems avoid feeding it in the future.

**Young adults:** 7 months to 1 year should be introduced to timothy, grass hays and/or oat hay. It should be available all day long. They require smaller amounts of alfalfa hay as well as fewer pellets. To supplement the rabbit's diet you can start introducing more vegetables and fruits.

**Mature adults:** Rabbits should be fed unlimited timothy, grass hay and oat hay. Reduce the pellet portion of the diet. Several servings of vegetables are required per day. Make sure to choose dark, leafy greens and feed at least three different kinds daily. Also make sure you are offering dark yellow and orange vegetables. Treats including fruits should be fed sparingly.

**Seniors:** Rabbits over 6 years of age can be fed the same diet at mature adults if they do not have weight problems. You may need to increase pellet intake if your rabbit is not able to maintain his body weight. Alfalfa can also be given to underweight rabbits but only if calcium levels are normal.

Feeding your rabbit gives you a great opportunity to bond with your rabbit.

## Nutrition Activity 1 (words found on next Page)

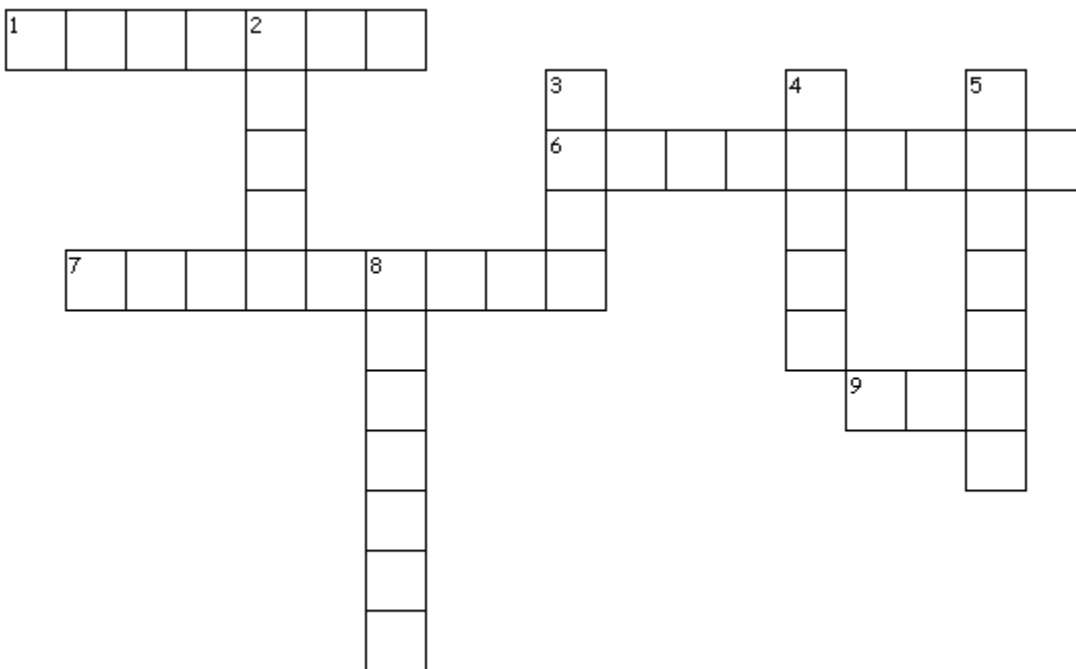
P S B W F H O S N P H X P A B  
U E O W S R R T L Q A A P L S  
T P L Y Z W A R K N Y P U J E  
D A W L B F N A V W L E R H O  
I R P A E D G W D E B D K Z T  
S G Z U T T E B S E Y D K C A  
V E N H N E S E R P K L Y S M  
H D L S E I R R E B P S A R O  
A I M B Y G I R S T I U R F T  
Y V P X A E S I R O N W S L S  
P E A R S T Z E Z A G N T Y I  
C H E R R I E S S K O N S V W  
K Q T H X K B G Y L I B A O F  
G E P Z P H U E E F K D N M H  
X J Q R W N G M U V F V Q E O

APPLES  
FRUITS  
MANGOS  
PEARS  
STRAWBERRIES

BLUEBERRIES  
GRAPES  
MELONS  
PELLETS  
TOMATOES

CHERRIES  
HAY  
ORANGES  
RASPBERRIES  
VEGETABLES

## Nutrition Activity 2



### Across

1. What contains high levels of oxalates?
6. What are toxic to rabbits?
7. Who should have unlimited amounts of alfalfa hay?
9. What feeds solely on its mother's milk?

### Down

2. What seeds are poisonous to rabbits?
3. What treat can be given sparingly?
4. What should be given to your rabbit around the clock?
5. What food is most important in the younger stages of your rabbit's development?
8. What lettuce has no nutritional value for your rabbit?

# Nutrition Activity 3

FAALLFA     

RYLCEE     

REGEN PEPEPRS     

SMTURDA RENSEG     

NEPPIRPTME SAVLEE     

SAHRID TPSO     

SHCPNIA     

HAWTE SARSG     

TIOMYTH HYA     

BAISL     



# Nutrition Activity 4

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
23	17												3					4							

<b>N</b>													<b>N</b>	<b>S</b>	<b>A N</b>	<b>S S</b>	<b>N</b>	<b>A</b>											
3	13	5	24	26	5	26	22	3				26	4	23	3	9	4	4	9	3	5	26	23	1					
			<b>N</b>					<b>N</b>								<b>N</b>							<b>A B B</b>						
9	1	9	21	9	3	5	26	3	12	9	9	16	26	3	14	25	22	13	24					24	23	17	17	26	5
					<b>A</b>						<b>A N</b>						<b>A</b>												
					11	23	16	16	25				23	3	15				11	9	23	1	5	11	25				

## Nutrition Activity 5

What does a good quality pellet contain?

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## Sources

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# PART III

## Advanced

### Physical Exam & Anatomy

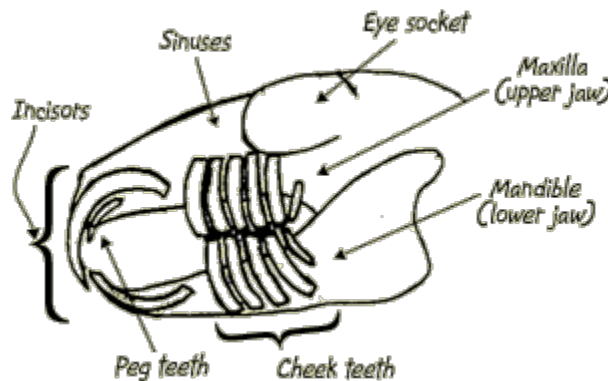
A regular examination of your rabbit pet can detect early problems and abnormalities that can lead to compromised health of your pet. Proper restraint during the health check of your rabbit is also essential for the safety and to prevent injury. Rabbits should be checked thoroughly every week in the winter and daily in the summer months when health conditions can change rapidly, especially depending on the heat and humidity.

#### Integument/Skin

The skin of rabbits is quite thin in comparison to the dog and cat. When clipping, rabbit skin is exceptionally prone to tearing. Intact buck skin tends to be thicker like in tomcats. Intact does will develop a prominent dewlap. The dewlap usually decreases in size in response to spaying and neutering.

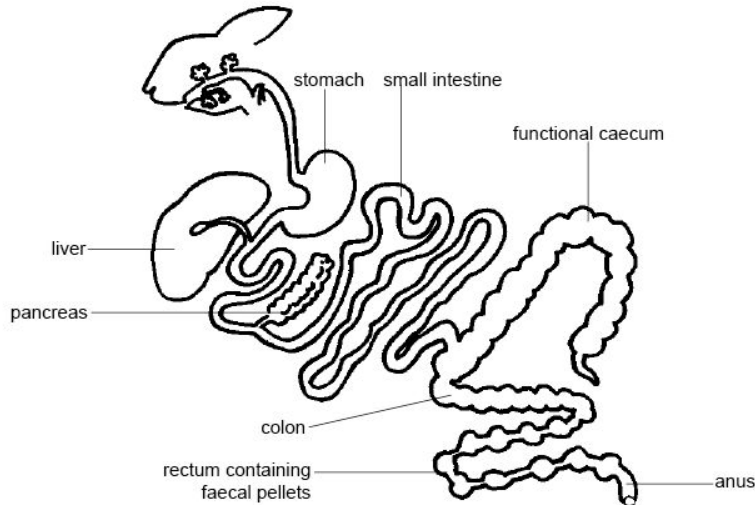
#### Digestive system/Gastrointestinal tract

Rabbits are lagomorphs and their dental formula is: 2(Incisors: 2/1, Canines: 0/0, Premolars: 3/2, Molars 3/3). Caudal to the upper incisors is a second set of maxillary incisors, the 'peg teeth.' This is one of the characteristics that differentiate rabbits from rodents. All teeth are open rooted and continuously erupt. The incisor growth rate of the upper arcade is 2.0 mm/week; the lower incisors grow at 2.4 mm/week. Without a way to wear these down, dental issues can arise.



As herbivores, rabbits have an extremely long digestive tract. The stomach has a cardia and a pylorus, but there is a limiting ridge at the junction of the esophagus and stomach which prohibits vomiting. The small intestine of rabbits has an extremely small opening throughout (approximately the size of a pencil). The ileum ends at a T-shaped junction with the cecum and large intestine. This is a potential site for intestinal impaction.

The cecum of rabbits is thin-walled but extremely large and distensible. It coils upon itself three times within the abdominal cavity, and contains bands and saccules. Following meals, rabbits produce moist, mucous-covered feces called cecotrophs which are re-ingested to provide bacteria and nutrients for the rabbit. Rabbits are thus known as being coprophagic. The cecum of rabbits holds 57% of the dry matter of the large intestine.



## Urinary system

### Respiratory system

Rabbits, like horses, are obligate nasal breathers. Obstruction of the nasal passages during any handling, including oral exam, can lead to respiratory compromise due to the ineffectiveness of mouth breathing. The nasal passages are in close to the upper teeth, and changes in either the nasal passages or molar tooth roots may affect each other. Diseases invading the nasal passages may affect the bone structure, and may ultimately lead to molar tooth movement and malocclusion; conversely, molar abnormalities and root elongation may push up on nasal passages and compromise respiration.

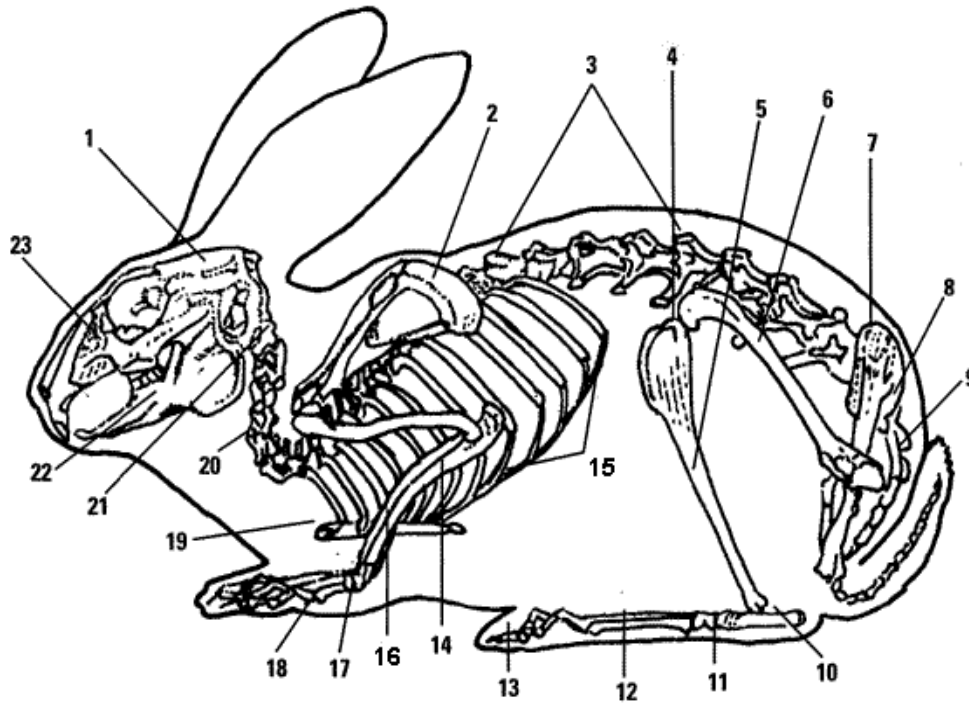
The rabbit trachea is narrow relative to body size. The thoracic cavity is small in comparison with the large abdominal cavity. Because of the small thoracic cavity, rabbits have more upper airway and bronchial sounds and may sound somewhat harsh. Learning how your rabbit's lungs normally sound can be helpful in identifying problems with its breathing.

### Cardiovascular system

The cardiovascular system of rabbits is unique. Both the right and left atrioventricular valves are bicuspid in rabbits. The heart is small relative to total body size, comprising only 0.3% of the total body weight. Rabbits have the most muscular pulmonary artery of any species, which contributes to their predisposition for pulmonary hypertension. Other vessels in rabbits are thin-walled, and prone to collapse and hematoma formation with venipuncture.

### Musculoskeletal system

The bones of rabbits are much lighter than most other species, comprising only 8% of the body weight, as compared to 12 to 13% in cats. The bones have thin cortices and are easily shattered. The forelimbs have five digits but the hind limbs only have four. The nails are long and narrow for digging and burrowing, but are not retractable, and rabbits should not be declawed. There are no footpads; instead the feet are thickly furred to protect the plantar surfaces. The powerful hind limb musculature and light skeleton enable powerful jumping over long distances; however, the longer spinal column is more prone to luxation or vertebral fracture with a powerful kick or struggle if the hind end is not well supported during restraint.



- |                    |                     |                |                        |              |
|--------------------|---------------------|----------------|------------------------|--------------|
| 1. Cranium (Skull) | 6. Femur            | 11. Tarsus     | 16. Radius             | 21. Atlas    |
| 2. Scapula         | 7. Ilium            | 12. Metatarsus | 17. Carpus             | 22. Mandible |
| 3. Spine           | 8. Sacrum           | 13. Phalanges  | 18. Metacarpus         | 23. Maxilla  |
| 4. Fibula          | 9. Caudal Vertebrae | 14. Ulna       | 19. Sternum            |              |
| 5. Tibia           | 10. Calcaneus       | 15. Ribs       | 20. Cervical Vertebrae |              |

### Reproductive system

The testes of male rabbits are located within hairless scrotal sacs which are located cranial to the penis. Male rabbits lack nipples. Differentiating males from females can be difficult, as the anogenital distance is the same in males and females. Eversion (turning inside out) of the cranial orifice will reveal either a circular entrance to the penis or a slit entrance to the vagina. Female rabbits have two ovaries, two uterine bodies, and two cervixes. The females have 4 to 5 pairs of mammary glands and nipples.

Unlike humans, dogs, and cats, rabbits can get mortally ill very quickly. With rabbits, it is best to err on the side of caution. If your rabbit is not eating or producing fecal pellets for 12 hours, seek medical attention immediately. Other health conditions you may face with your pet may require immediate attention. If you see a bluish color to the lips, tongue and ears that is due to lack of oxygen (hypoxia) and your rabbit may have pneumonia or an airway obstruction. Try to clear anything obstructing the nasal passages and have your rabbit seen immediately. Knowing what is NORMAL is very helpful in determining if your rabbit has a problem. Use the information below to assess your rabbit and to begin treatment on the way to your vet's office. Remember, in an emergency, time is critical.

**Normal Rabbit Vital Signs** (temperature, heart rate, respirations) are as follows:

- Rectal Temperature: 103.3-104F; 38-40C
- Heart Rate (pulse): 130-325 beats per minute
- Respiratory Rate: 32-60 breaths per minute
- 

If the rectal temperature is less than 100F (hypothermic), keep your rabbit warm by placing him/her on a towel wrapped hot water bottle or a towel wrapped heating pad turned on low. If the rectal temperature is greater than 105F (hyperthermic), moisten the rabbit's ears and bottom of the feet with rubbing alcohol and/or place him/her on a towel wrapped ice bag or a towel wrapped bottle with cold/frozen water in it.

NOTE: Ear thermometers are not reliable.

Take your file of your rabbit's medical records with you if you are not going to your regular vet. This helps a new vet establish baseline information about your particular rabbit so that a diagnosis can be made more quickly.

# Physical Exam & Anatomy Activity 1

M S W G J S S H B S R T S W E  
U C D R M M E F C E U I E Y S  
N A B E O A L G V A N N E O R  
R P A C W L P I N U M S A E O  
E U N T C L L A S A O O L E S  
T L L U M I A E N C L B T R I  
S L U M W N S P K C I A A S C  
E A R B E T R E V D R D H S N  
S C L B C E T T N H I E B P I  
U I O U T S K A Q U R I A X F  
S W X L B T M B S F R O G S E  
R G M T O I P E G T E E T H M  
A I B I T N F C R A N I U M U  
T A C S X E S U P R A C F Q R  
A L L I X A M C E C U M T A F

ANUS  
CRANIUM  
FIBULA  
MAXILLA  
RADIUS  
RECTUM  
SMALLINTESTINE  
TIBIA

CARPUS  
DEWLAP  
INCISORS  
PANCREAS  
RIBS  
STERNUM  
ULNA

CECUM  
EYESOCKET  
LIVER  
PEGTEETH  
SCAPULLA  
STOMACH  
VERTEBRAE

COLON  
FEMUR  
MANDIBLE  
PHALANGES  
SINUSES  
TARSUS



# Physical Exam & Anatomy Activity 2

Unscramble each of the clue words. Copy the letters in the numbered cells to other cells with the same number.

OLRA CAYTIV

27				5							40

LUNSG

50	42	21	3	22

RETTPUAMERE

	2	18		20							

RAHT TERA

9		7				34	

MONDEBA

14	32	44	37			38

RAORPRYSTEI ARET

						6		46		26		49	48	

SONELKET

35		15					41

MAULUECURTS

	28		36			31	39		1	43	

IRRUNAY

4	24	12				29

VUROEPIDTERC

30		8		45	47			51	33		

YEES

	10		19

URF

	23	

SEAR

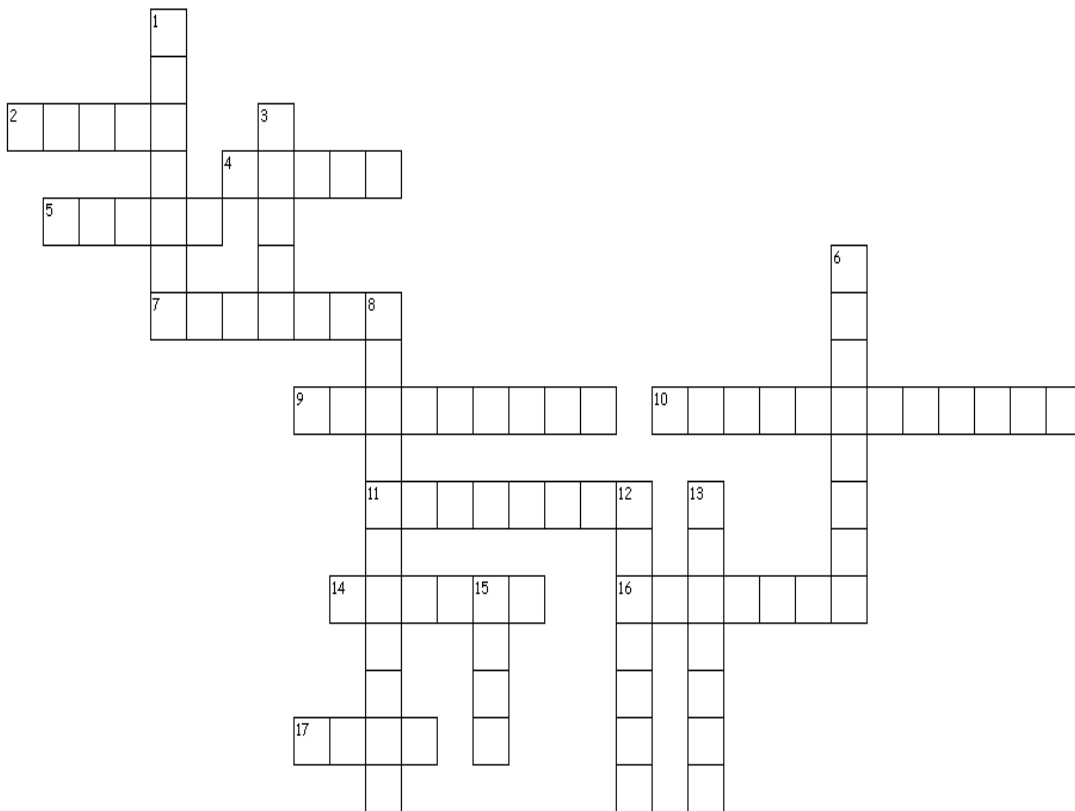
16	17		11

CEFSE

		13		25

																X														
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29		
30	31	32	32	33	34	35	36	37	38	39	40	41	42	43	44	3	45	46	47	9	48	49	50	51	9					

# Physical Exam & Anatomy Activity 3



## Across

2. Dietary compounds or plant pigments can be mistaken for this in the urine.
4. Atomic structures that continually grow throughout a rabbit's lifetime.
5. Structures lighter than in most other species.
7. Digestive structure between the esophagus and small intestines.
9. Potential problem associated with the area where the ileum meets the large intestine and cecum.
11. Body cavity that is small in comparison to the abdominal cavity.
14. Decreases in size in response to spaying and neutering.
16. Female rabbits have several pair of these but male rabbits do not.
17. Anatomic structure that is very prone to tearing if traumatized.

## Down

1. Primary organs in the urinary system that also includes the ureters, urinary bladder, and urethra.
3. Portion of the digestive tract that holds the largest amount of dry matter.
6. Rabbit feet are furred and do not have these.
8. Rectal temperature less than 100F.
12. Rabbits do not have this tooth type.
13. Lack of oxygen can cause a bluish color to the lips, tongue and ears.
15. Terminal end of the digestive tract.

# Rabbit Diseases

Every rabbit owner should become familiar with the symptoms and being able to identify the most common rabbit diseases, and to seek the help of your veterinarian in treating these ailments. Even though many pet rabbits are treated as indoor pets living in the home, they still can be afflicted with many same ailments as their production rabbit counterparts. Proper care of your rabbit also plays an important role in preventing many of these medical issues.

It's a good idea to create a small medical kit and stock it with some of the most frequently used items for treating minor rabbit ailments. Content suggestions include: Q-tips, Cotton balls, nail-clipper, eye-dropper, eye ointment, rubbing alcohol & a rectal thermometer. A stethoscope may also be helpful in listening to lung sounds and heart rate. Rabbit medications can be purchased from a feed store or through catalogs, but all medications should be given under the advice of a licensed veterinarian. Annual exams of your pet rabbit by a veterinarian are recommended and necessary any time your rabbit is acting ill.

## **PASTEURELLA, "SNUFFLES"**

The most common respiratory tract infection in rabbits is caused by the *Pasteurella multocida* organism, and is sometimes called "Snuffles." It can be transmitted from other rabbits, or occur because of stress, malnutrition, or bacterial infections. Sometimes allergies or environmental irritants like ammonia, excessive humidity, or even dust or debris lodged in the eye or nose can be the original cause of the problem. Symptoms initially include persistent sneezing and colored discharge from the nose and or eyes. Typically, a thick, purulent discharge from the nose and matting on the inside front paws are the most common signs. Rapid breathing (tachypnea), lethargy and listlessness are also seen. *Pasteurella* is highly contagious to other rabbits and there is no reliable cure. Affected individuals can be treated with antibiotics, but efficacy is not guaranteed, and chronic infections are common. Isolation and even culling of infected rabbits may be the best ways to ensure the rest of your rabbits are not infected. Because of its highly infectious nature, it is recommended to change your clothes and wash thoroughly before going near any other rabbits. Isolate any sick rabbit immediately and care for the herd first and the isolated animal last. Disinfect its cage and any other equipment the rabbit came in contact with.

Rabbits can be treated with a number of antibiotics but to this point none have been successful in bringing about a cure. The best treatment for *Pasteurella* is prevention. Strict sanitation, good ventilation and culling will go a long way in helping to prevent the spread of this disease.

## **COCCIDIOSIS**

There are two types of Coccidiosis Intestinal and Liver Form. The disease is caused by a protozoan parasite which attacks the bile duct or the intestinal tract. There are ten different coccidian species of the genus *Eimeria* which may infect the intestine. Generally these are not of much concern, unless a case of enteritis makes an appearance. This can lead to enterotoxemia and or Mucoid enteropathy, although enterotoxemia has been reported in rabbits which are free of Coccidiosis. Liver Coccidiosis is a problem as it causes white spots on the liver which renders the rabbit uneatable. Symptoms include lack of appetite (anorexia), rough coat, loss of weight, poor weight gain, potbelly, listlessness and diarrhea. All of which often lead to death. The best treatment is the use of sulfaquinoxaline in the drinking water as the only available water for 5 days on, 5 days off then 5 days on again. Repeat the treatment in 30 days to get any hatchlings. Prevention is best. Do not allow fecal contamination of the feed or water.

## **GASTROINTESTINAL STASIS**

A rabbit's intestine can become static for a variety of reasons, including (1) stress, (2) dehydration, (3) pain from another underlying disorder or illness (such as gas, dental problems, infections, or urinary tract disorders) (4) an intestinal blockage or, (5) insufficient dietary crude fiber. Left untreated, the slowdown or complete cessation of normal intestinal movement (peristalsis) can result in a painful death, in a relatively short period of time. If your rabbit stops eating or producing feces for 12 hours or more, you should consider the condition an emergency and you should consult your veterinarian immediately. An intestinal slowdown can cause ingested hair and food to lodge anywhere along the GI tract, creating a potential blockage. Additionally, harmful bacteria such as *Clostridium* species (related to the ones that cause botulism and tetanus) can proliferate, and once this overgrowth occurs, gas emitted by the bacteria can cause extreme pain. With GI stasis, the normal, quiet gurgling of the healthy intestine may be replaced either by very loud, violent, painful gurgles or silence. The bunny may become lethargic, have no appetite and may hunch in a ball, loudly crunching his teeth in pain.

Sometimes, a rabbit suffering from GI stasis is diagnosed as having a "hairball." In reality, an apparent hairball usually is a *result* of GI stasis--not the cause. A "doughy" stomach when palpated is usually cause for concern only when accompanied by an empty lower GI and symptoms of abdominal discomfort. Like those of most herbivores, the stomach and intestines of a healthy rabbit are never empty. A rabbit may eat relatively normal amounts of food, almost up to the time the GI tract shuts down. Because of this, the stomach may contain a large bolus of food when stasis occurs. Unlike the typical cat hairball, which usually consists entirely of hair, a mass misidentified as a "hairball" in a rabbit is usually composed mostly of

food held together by hair and mucus. Such a bolus, even if it is dehydrated and unable to pass out of the stomach when initially found, usually can be broken down slowly with plenty of oral fluids and even enzyme supplements, if the vet deems them necessary. However, if the mass is there as a result of chronic GI stasis, simply treating the mass without addressing the GI stasis will be unproductive in the long term.

### **EAR MITES**

Ear infections, also called “canker”, is caused by the parasite Psoroptes cuniculi which likes to make its home in the rabbit's ear canal. They irritate the rabbit to the point that the scratching can lead to infection and is highly contagious to other rabbits. Symptoms include shaking of the head, scratching the ears, and a brown waxy crusty substance will appear after a while if not attended to. Hair loss over the top of the head and ears and reddened ears are also signs of ear mites. Place a few drops of any type of oil in the ears and massage the base of the ear gently to work the oil in. The oil will drown the mites. Treat one to three times a day for three days; repeat in ten days to get hatchlings.

### **FUR MITES**

These mites look like flakes of dandruff, is caused by Chyletiella parasitivorax and Listrophorus gibbus, and is the most common skin problem seen in rabbits. They occur most commonly on the back of the neck. An over-population may cause dermatitis and include symptoms like an unthrifty, mangy coat, loss of fur around the face, neck and back. Treatments include a good cat flea powder, Listerine mouthwash rubbed into the infected area will make short order of the Mites. Repeat treatment in ten days.

### **FLEAS**

Rabbits can also get fleas just like cats and dogs. They are small insects that jump and scurry on the skin. Flea dirt and eggs can be seen on the table surface when your rabbit is brushed. Flea dirt will turn red when wet due to the digested blood cells in the droppings. Preventative medications like Revolution and Advantage are topically applied (in the correct dosages) that can prevent infestations similarly to your other pets. Cat products are the safest to use on rabbits, but do NOT use dips, flea powders, collars or products such as Frontline or Sentinel. Room spraying or household flea bombs can be used, but all pets should stay out of the environment for 24 hours.

### **CONJUNCTIVITIS, “WEEPY EYE”**

This eye malady is usually caused by Staphylococcus species or Pasteurella multocidia, which is the most common. Inflammation of the conjunctiva is the most common sign, and there is often a history of respiratory infections and or snuffles. This is a common problem in young rabbits and can be noted early due to the squinting of the eyes. You will also notice matted fur in the corner of the rabbit's eye[s] and under the lower lid. Also look for any discharge or wetness from the eyes. Many breeders use neomycin eye ointment three times a day for three or four days. The drug of choice is Penicillin G injectable used as eye drops. Consult your veterinarian prior to treating for this for the best treatment for your rabbit.

### **SORE HOCKS**

Sore-Hocks is a genetic problem. The condition is easily noticed by the open wounds or ulcers on the footpads of the afflicted rabbit. There may be hair loss on feet and legs, joint swelling, or callouses on the feet. Part of the cause is poorly furred footpads and long often uncut toenails. Open sores on the feet can rapidly lead to secondary infections. Often the rabbit sits in the corner of its cage and for the most part is inactive. It is best to breed toward well furred footpads. Place a board or piece of drywall large enough for the rabbit to sit on. Do not allow it to get dirty or it will become a source of infection. Change or clean it often.

### **WOOLBLOCK or HAIRBALL**

Hairballs are caused by the rabbit ingesting too much fur during the cleaning process. Rabbits fail to eat and become listless. The stomach becomes taut, firm to the touch as the condition worsens. A quick response is essential if you are to save your rabbit. Often this hair can form into hard balls, called trichobezoars, and are difficult for the rabbit to pass. Regular grooming of normal furred rabbit and shearing of the wool on all fiber animals will go far in helping to prevent this condition. You can use Cat hairball remedies. You can also use the enzyme papain or bromelain, which is found in fresh Pineapple and Papaya. You should provide grass hay to the rabbits' diet at least two to three times a week as a bulky food to prevent hair accumulation. The long fiber keeps the hindgut working properly. You should see string of pearls, cling-ons, hanging from the cage floor. This is a sure sign that the long fiber hay is doing its job. Brush the cling-ons from the wire within twenty-four hours to aid in the prevention of coccidiosis.

### **MALOCCLUSION**

Rabbits' teeth grow continuously and are usually worn down by the fibrous foods they normally eat. On pelleted feed the teeth often become overgrown and can be misaligned causing pain and difficulty eating. This can also be a genetic problem or can be caused by the rabbits yanking its teeth out of alignment by pulling on the cage wire. For teeth which are not a genetic problem one can resort to clipping the teeth on a regular basis to allow the rabbit to properly masticate its food. A genetic problem is best handled by removing the rabbit permanently. Signs of malocclusion include

rounded shape to head, drooling (ptyalism), grinding of teeth and bulging of the eyeballs. Inappetance is also noted if the rabbit is so painful it is unwilling to eat.

### **RED URINE**

This is really not a true disease, but has more to do with the diet and is not much of a problem at all. Red urine does not actually contain blood at all. It is normal for a rabbit's urine to manifest itself in a veritable rainbow of colors without it being problematic. Red urine is caused by an alkaline. Some feeds like Alfalfa can produce red urine. The red color comes from Phenolic compounds [tannins] which are found in forages and feed ingredients. Calcium is also excreted in the urine on occasion. There really is no treatment as it is not a disease. It is most commonly found in rabbits which are on a high Legume hay diet.

### **WET DEWLAP**

This is caused by the rabbit dragging its dewlap through the water bowl. This is most often observed in the warmer weather. You will see wet fur on the dewlap with changing color of the skin to a dark green. A distinct odor is associated with this condition. Treatment includes clipping the wet fur from the affected area and applying antibiotic cream or ointment to that area. To prevent this, raise the water crock up off the cage floor 4 to 5 inches so the rabbit does not drag their dewlap through the water bowl. Place a small rubber ball into the crock to force the rabbit to drink from the edge of the bowl/crock.

### **PARALYSIS**

Paralysis due to improper handling is a leading cause of death in rabbits. Make sure you always support your rabbit's hind limbs when handling. A rabbit that is dropped or allowed to kick out can cause damage to the hindquarters and back. In some cases the kick is so forceful, a rabbit can fracture its vertebrae causing permanent paralysis. Dragging of the hind limbs is the most common clinical sign.

### **PNEUMONIA**

This is an infection within the lungs of the rabbit. You will see an increased respiratory rate (tachypnea), a bluish color to the lips, tongue and ears due to lack of oxygen (hypoxia). There is little chance of survival for the rabbit stricken with pneumonia. Many broad spectrum drugs have been tried to no avail. Upper respiratory tract infections and lung damage due to ammonia fumes can lead to severe lung disease and pneumonia. Steps should also be taken to prevent the possibility of heat stress, as pneumonia is often a secondary ailment due to heat stress. The use of fans to create air movement through your rabbit's environment helps especially if housed outside. Try to house your rabbits in an area where they get some shade in the warmer months, or create a shaded area to protect from the sun's heat creating rays. Treat your rabbits immediately at the first signs of increased difficulty breathing.

### **HEAT STRESS**

Stress can greatly affect your rabbit's health. It is something you should always be aware of if your rabbit is housed outside. Conditions which can cause heat stress are a radical change in temperature and increased humidity. Rabbits, like dogs and cats, cannot sweat to cool themselves. They breathe hard to exchange cool air for hot/humid breath to cool their bodies. Drinking water is the other primary way they cool themselves. Heat stress occurs during extremes of hot weather especially if there is not enough air circulation through the rabbit's housing area. If you notice your rabbit is lethargic and listless, bulging of its eyes, reddened ears, and breathing rapidly (tachypnea) and hard or convulsing, emergency measures must be taken if there is to be any chance at all of saving the rabbit. Dip the rabbit in a bucket of tepid water, but not ice water, keeping the rabbit's nose and mouth above water. Ice water causes vasoconstriction that can make the condition worse. During warmer months you can freeze soda bottles or milk jugs half full of water. Place these in the cage with your rabbit[s] when temperatures exceed 80 to 85 degrees. They will lie against them to cool themselves. If you know your rabbit will be experiencing hot temperatures, you can mix one part Gatorade to four parts water and give as drinking water to add electrolytes.

### **DIARRHEA**

Take immediate action at the first sign of diarrhea. This could be a life and death situation for any rabbit especially the very young, as they can become severely dehydrated. Parasites, like coccidia, are very contagious and can cause diarrhea. If diarrhea persists, intestinal damage may be too severe to save the rabbit. Some foods, especially treats, can cause diarrhea, thus STOP ALL TREATS until the diarrhea has cleared up. Feed plenty of long-fiber grass-hay and oats will work well. You may even want to stop the pelleted feed. When the stools return to normal slowly add the pelleted feed back to the diet while continuing to give grass hay on a regular basis. Two to three times a week if not more often.

## RINGWORM

Lesions caused by Dermatophyte fungi are usually lacking hair in a somewhat circular pattern. The edges can be crusty and are sometimes mildly itchy. Secondary infections to the skin are common if the scratching is excessive. Under a Wood's Lamp the skin edge glows with a phosphorescence. Ringworm is a zoonotic disease that can be passed to humans and other animals.

## PREGNANCY TOXEMIA

Pregnancy Toxemia is a general problem with rabbits and some are more prone to it than others. Some of the more common reasons are overweight Does, hairball blockage and stress, brought on by high heat and humidity. The symptoms most often appear a few days before the Doe kindles or right after. The problem is associated with a combination of high nutritional demand and conditions that limit intake. The Dam cannot meet its energy demands as she is unable to metabolize properly. As a result of this inability to metabolize the fat reserves accumulate in the liver and cause the problem. If not treated the rabbit goes into a coma and will die.

Because of the inadequate energy supply, the blood glucose level is depleted (hypoglycemia). A sub-Q injection of Glucose or Dextrose given by your veterinarian is an effective treatment. It may take three or four injections for the larger breeds to return to normal. As a follow up, feed with a curved tip feeding syringe either Karo syrup or molasses. 1cc every four hours until they start eating pelleted feed again. While they remain off pellets, mix 1-2 teaspoons of baby oatmeal or high protein cereal, 1cc syrup, 1 tablespoon Nutrical and feed with curved tip syringe.

# Some Tips In Keeping Your Rabbits Healthy

- Build a rabbit hutch [cage] which can be easily cleaned and will keep your rabbit safe from the elements of weather. Build a roomy and comfortable hutch or cage. Your rabbit must remain dry and free of drafts. Place the hutch in an area where it will avoid dampness and excessive heat.
- Keep all your hutches and equipment clean. This will help you to avoid most infectious diseases and injuries.
- Learn to recognize rabbit diseases and treat at the first sign of illness should it become necessary. Regular health checks should become part of your normal routine with your pet rabbit.
- Isolate ALL new arrivals for two to four weeks. Water and feed them after the rest of the herd has been cared for.
- Beware of lending or borrowing rabbits for breeding. This is a good way to bring disease into your herd.

## Diseases Activity 1

**FILL-IN** – Use the words at the bottom to best complete the sentences.

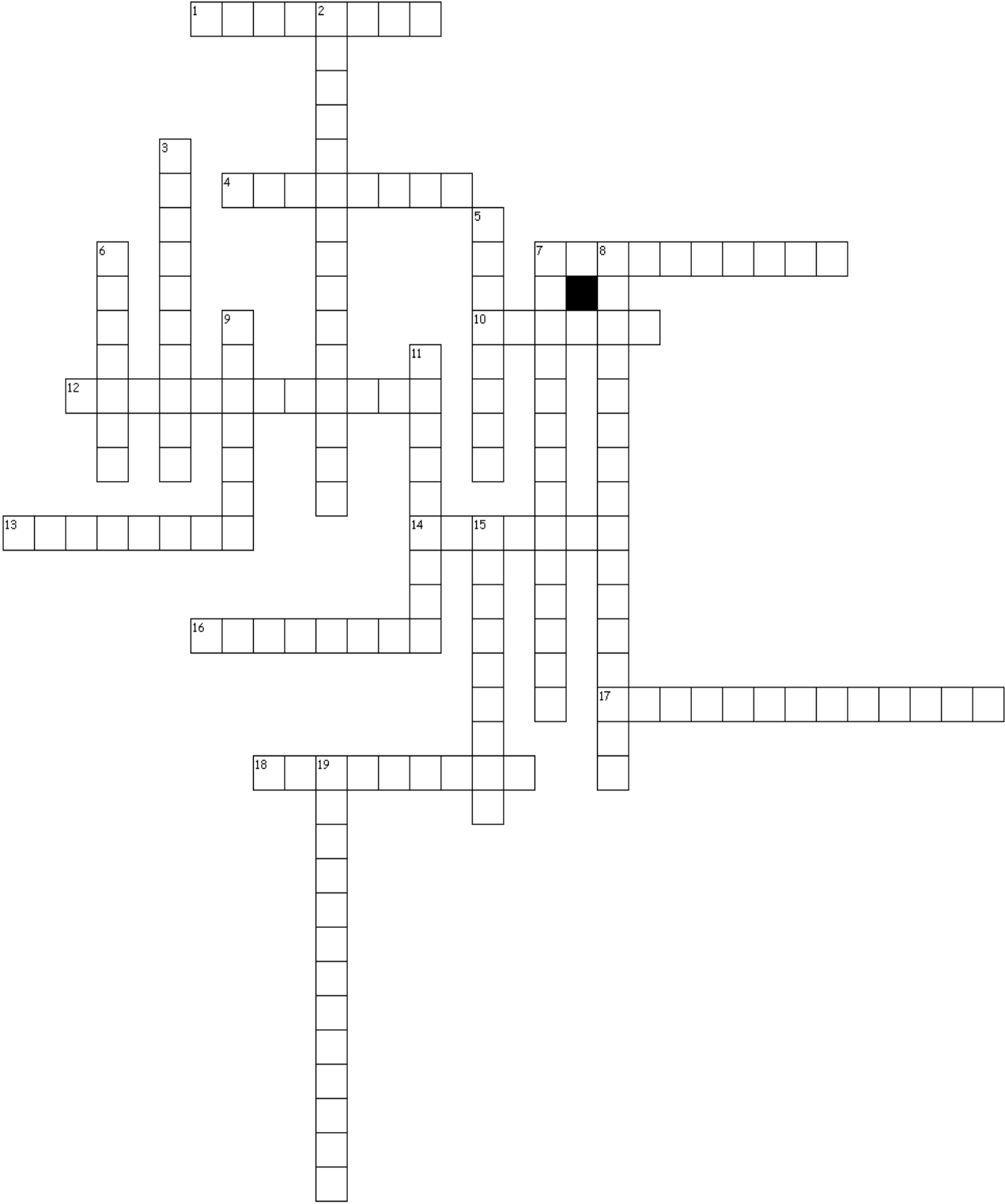
1. Prevention is better than \_\_\_\_\_.
2. Animals that ingest their stools are known to be \_\_\_\_\_.
3. \_\_\_\_\_ is often caused by another illness but can also be caused by incorrect diet and environmental stress and can lead to dehydration.
4. \_\_\_\_\_, also known as myiasis, is a potentially fatal illness that can affect any rabbit. It occurs when flies lay eggs in a rabbit's fur, which then mature into maggots that burrow into the skin feeding on the skin and underlying tissue.
5. Hairballs occur when rabbits ingest too much hair through their regular \_\_\_\_\_, and the hair can form into hard balls, known as \_\_\_\_\_, in the digestive tract.
6. Canker, or \_\_\_\_\_ known as Psoroptes cuniculi, invade a rabbit's ear causing painful irritation and can be highly contagious.
7. It is important to give your rabbit regular \_\_\_\_\_. Once weekly in the winter and daily in the summer when they are more at risk of ailments is a good way to identify health problems in an early stage so they can be addressed quickly.

8. \_\_\_\_\_ in rabbits is caused by feeding an incorrect diet high in commercial dry pellets and not enough rough hay.
9. \_\_\_\_\_ is an inflammation of the lungs that often occurs as a complication of another illness, usually a Pasteurella infection. It also can be caused by heat stress and improper ventilation of the rabbit's housing.
10. To decrease the chance of uterine cancer in females over the age of 5 years, \_\_\_\_\_ is recommended.
11. The most common skin problem seen in rabbits is caused by \_\_\_\_\_, also known as mange mites, fur mites or "walking dandruff".
12. "Snuffles" caused by \_\_\_\_\_ is the most common respiratory infection with purulent nasal discharge, is very difficult to treat and is highly contagious.
13. The \_\_\_\_\_ of male rabbits is essential for cohabitation with other rabbits to prevent fighting, inappropriate breeding, urine spraying and aids in the ease of litter box training.
14. Often caused by a bite wound or cut or infected tooth, an \_\_\_\_\_ is a pocket of fluid and pus caused by bacterial infections. They can also be caused by a foreign object or plant awn becoming embedded into the skin or mouth.
15. Inflammation of the intestines caused by sudden changes in the diet is called \_\_\_\_\_ and commonly affects rabbits between 4-8 weeks old.
16. Inflammation of the eye caused by bucks spraying urine, ammonia fumes, dust and draughts in the housing environment is called \_\_\_\_\_.
17. Improper holding causing a rabbit to fall or kick-out can cause damage to the hindquarters and back resulting in \_\_\_\_\_.
18. \_\_\_\_\_ lesions are usually bald crusty areas that are mildly itchy and scratching can cause secondary bacterial infections; this fungus is \_\_\_\_\_ and is easily transmitted to humans as well as other rabbits.
19. Rabbits defecate often, so no stool seen in 12 hours could be a sign of \_\_\_\_\_ and is life-threatening.
20. When you suspect your rabbit is ill or harmed in some way, the first thing you should do is to call your \_\_\_\_\_ for proper medical advice.

**WORD BANK** -- Use each word only once.

ABSCCESS	CHEYLETIELLA	NEUTERING	FLY STRIKE	ENTERITIS
OBESITY	PNEUMONIA	DIARRHEA	CURE	CONJUNCTIVITIS
HEALTH CHECKS	CAPROPHAGIC	GROOMING	EAR MITES	PARALYSIS
SPAYING	PASTEURELLA	TRICHOBEZOAR	RINGWORM	ZOONOTIC
GUT STASIS	VETERINARIAN			

# Diseases Activity 2





**Across**

1. Fungal infection
4. Diseases humans can get
7. Ingesting stools
10. Psoroptes ear mites
12. Important health professional
13. Respiratory infection caused by Pasteurella
14. Incorrect diet high in dry pellets
16. Causes severe dehydration
17. Drooling or grinding of teeth
18. Abdominal discomfort and lack of stools produced

**Down**

2. Cheyletiella fur mites
3. Caused by high heat and humidity
5. Parasite causing diarrhea
6. Infected pocket of fluid
7. Inflammation of the eye
8. Doe nutritional demands not met
9. Maggots feeding on skin and tissue
11. Inflammation of the lungs
15. Inflammation of the intestines
19. Hair balls

# Diseases Activity 3

E G R A H C S I D B H G D X U  
B S F W E S F Y R E D N E S S  
D Y C Y C F G N E V P I D S T  
O N C R N R X I J E H D E I A  
I N F L A M M A T I O N H S C  
S S M H T T R P Q W S I Y Y H  
S N T Y E W C M Y S M R D L Y  
O E A P P S M H E H K G R A P  
L E E O P M S L I R C H A R N  
R Z H X A I T L U N Y T T A E  
I I R I N S N E U O G E I P A  
A N R A I X E R O N A E O W R  
H G A L S D N U O W D T N N I  
G N I K A H S D A E H M G M U  
Q Q D B Z W E I G H T L O S S

ANOREXIA  
DEHYDRATION  
DIARRHEA  
DISCHARGE  
HAIRLOSS  
HEADSHAKING  
HYPOXIA  
INAPPETANCE  
INFLAMMATION  
ITCHY  
LETHARGY

LISTLESSNESS  
PAIN  
PARALYSIS  
REDNESS  
SCRATCHING  
SNEEZING  
TACHYPNEA  
TEETHGRINDING  
WEIGHTLOSS  
WOUNDS

# Diseases Activity 4

Match clinical signs or symptoms with possible disease.

- \_\_\_\_\_ 1. Lethargic, listless, bulging of eyes, reddened ears, rapid breathing.
- \_\_\_\_\_ 2. Bluish color to lips, tongue and ears.
- \_\_\_\_\_ 3. Unthrifty, mangy coat, loss of fur around the face, neck and back.
- \_\_\_\_\_ 4. Little pieces of dirt that turn red when wet.
- \_\_\_\_\_ 5. Redness and inflammation of the eyes.
- \_\_\_\_\_ 6. Ulcerated foot pads.
- \_\_\_\_\_ 7. Firm, taut abdomen that can be painful to the touch.
- \_\_\_\_\_ 8. Thick, purulent discharge from nose and matting on inside front paws.
- \_\_\_\_\_ 9. Enteritis, diarrhea, dehydration, potbelly, weight loss.
- \_\_\_\_\_ 10. Anorexia and no stool produced.
- \_\_\_\_\_ 11. Shaking head, scratching at ears, and crusty discharge.
- \_\_\_\_\_ 12. Dragging hind legs following a fall.
- \_\_\_\_\_ 13. Drooling, decreased appetite, grinding of teeth.
- \_\_\_\_\_ 14. Circular, hairless lesions.
- \_\_\_\_\_ 15. Lethargy, hypoglycemia.

CANKER

GUT STASIS

PNEUMONIA

COCCIDIOSIS

HAIRBALL

PREGNANCY TOXEMIA

CONJUNCTIVITIS

HEAT STRESS

RINGWORM

FLEAS

MALOCCLUSION

SNUFFLES

FUR MITES

PARALYSIS

SORE HOCKS

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## Helpful Websites

[http://www.ehow.com/how\\_2189367\\_rabbit-proof-home.html#ixzz2Tezv7279](http://www.ehow.com/how_2189367_rabbit-proof-home.html#ixzz2Tezv7279)

<http://exoticpets.about.com/od/rabbitcare/a/rabbitproof.htm>

<http://www.peteducation.com/article.cfm?c=18+1803&aid=2724>

[http://www.ehow.com/how\\_16494\\_exercise-rabbit.html#ixzz2TexRLIdD](http://www.ehow.com/how_16494_exercise-rabbit.html#ixzz2TexRLIdD)

<http://www.extension.org/pages/61400/exercising-your-rabbit>

[http://www.ehow.com/how\\_16494\\_exercise-rabbit.html#ixzz2TewSI2HF](http://www.ehow.com/how_16494_exercise-rabbit.html#ixzz2TewSI2HF)

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<http://www.mnhouserabbit.org/join/classes/rabbitagility.html>

<http://www.veterinarypartner.com/Content.plx?A=470&S=1&SourceID=43>

<http://www.arba.net> (American Rabbit Breeders Association)

<http://www.vcahospitals.com/main/pet-health>

<http://www.asPCA.org/pet-care/small-pet-care/general-rabbit-care>