



Neutering Rabbits

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The word "neuter" refers to the removal of the reproductive organs of either a male or a female of a species, although specifically referred to as spay in the female and castration in the male. The 'scientific' terminology for neutering in the male is *castration* and in the female is *ovariohysterectomy*.

REASONS FOR NEUTERING RABBITS

- **Prevention of Pregnancy** - This is the most common reason that rabbits are neutered, particularly if there are both male and female rabbits living together in a household. There are certainly enough rabbits in the world and too many are neglected or abandoned. One should not consider breeding these pets just for 'fun' or 'education'. Be a responsible pet owner and do not breed your pet unless you are well educated on the topic and are prepared to take on all the responsibilities such activity entails.
- **Prevention of Uterine Cancer** - This is the most compelling medical reason to spay female rabbits. Uterine adenocarcinoma, which is a malignant uterine cancer, can approach 80% of females in some rabbit populations. The incidence may be related to the genetic makeup of the rabbit. Since we usually don't know the genetic background of most of our rabbits, it is best to have the surgery done to prevent this cancer. Uterine adenocarcinoma can spread rapidly to other organs of the body such as the liver and lungs, at which point it is not treatable. Rabbits under two years of age rarely develop this disease so it is best to get your female spayed before this age.
- **Prevention of Other Uterine Disease** - Although cancer is the most common disease of the rabbit uterus, other uterine disease are possible, including

pyometra (uterine infection), uterine aneurism (uterus full of blood) and endometritis (inflamed uterine lining). Like uterine cancer, these conditions are all more common in female rabbits over two years of age.

- **Prevention of False Pregnancies** - Female rabbits can go into a hormonal state triggered by their ovaries where the body acts as if it is pregnant but there is in fact no pregnancy present. Although this is not medically harmful, it can be very stressful for the rabbit that goes through all the activities of being pregnant including nest building, milk production, and aggressive protection of its territory. This aggression can be taken out on the caretakers and cage mates and can make the pet very difficult to handle during this period. Some rabbits experiencing false pregnancy will develop a decrease appetite and have gastrointestinal disturbances as well.
- **Prevention of Mammary Gland Disease**- Mammary gland neoplasia (breast cancer) is not common in female rabbits, but when it occurs it can spread rapidly and be very difficult to treat. It is preventable if the pet is neutered before two years of age. It is interesting to note that the most common type of mammary cancer is a malignant form called mammary adenocarcinoma and it is almost always associated with uterine cancer. The other common mammary gland disease is cystic mammary glands, which can be uncomfortable to the pet. Neutering a female rabbit before two years of age will prevent both of these mammary diseases.
- **Prevention of Aggressive Behavior** - Both male and female rabbits can display aggressive behavior when they are fully in the state of sexual maturity. Many rabbits are sweet and easy to handle as little babies, but when the 'teenage years' hit at around six to twelve months of age they can become aggressive and territorial almost overnight. They don't want to be touched or picked up and they act like they want to destroy everything in sight. This is their way of learning to protect themselves, their territory and to establish their social position in the rabbit world. However, they can often take out their aggression on you or their cage mates. There may be more biting, striking, lunging and chasing. It is

best to neuter just before or shortly after sexual maturity to keep this behavior to a minimum.

- **Prevention of Urine Spraying-** Both male and female rabbits can spray urine on vertical surfaces to mark their territory. Mature males do this at least 10 times more frequently than females. In addition, the urine from a sexually mature male rabbit can have a very strong and unpleasant odor. If this behavior is allowed to continue for a long period of time, it may be impossible to completely stop it. Therefore, it is best to "nip it in the bud" and get them neutered just prior to or shortly after sexual maturity.
- **Prevention of Testicular Disease** - Disease of the testicle is uncommon in the male rabbit, but it can occur. Most commonly we see abscesses, hematomas and testicular tumors. Castration prevents all of these disorders.

AGE TO NEUTER

The best age to neuter either male or female is just before or shortly after sexual maturity. Depending on the breed, this time could range from four to six months in the small to medium sized breeds and up to nine months in the giant breeds. We do not recommend neutering rabbits younger than four months of age because the surgery may be more difficult due to the size and position of the reproductive organs. There is no health benefit to neutering earlier than four months of age. However there is a benefit in females of neutering before two years of age because after two, the incidence of uterine and mammary gland disease can increase.

Your rabbit should be examined by a veterinarian prior to surgery to make sure your pet is in good condition and ready for neutering. Sexual maturity can be gauged a number of ways including: visualizing the presence of testicles in the scrotal sacs, the presence of a well developed vulva, the presence of mature body condition and by behavioral changes such as urine spraying and increased aggression. Your veterinarian may recommend some simple tests prior to surgery, particularly if your pet is older or has had other medical problems. We do not recommend performing routine neutering procedures on obese animals or those with other disease because these rabbits are at high risk for surgical complications. The weight should be reduced and any disease conditions managed prior to having a major surgical procedure performed.

WHAT HAPPENS AT NEUTERING

When a male rabbit is castrated, the testicles are completely removed. There may either be one incision in front of the testicles through which both are removed, or there may be two incisions, one over each scrotal sac. The incisions may be left open which is acceptable if scrotal incisions were made, or closed with suture or surgical glue. The scrotal sacs swell within 24 to 48 hours after surgery but in another 7 to 10 days the swelling should be gone. The scrotal sacs will eventually shrink to a very small size over time. It is important to note that neutered males should NOT be put in contact with intact females for at least a minimum of 4 to 6 weeks after neutering. Male rabbits can still have living sperm in ducts within the spermatic cord call the vas deferens, which cannot be removed during surgery. The sperm in these ducts can live several weeks. Testosterone blood levels drop slowly after neutering and male rabbits will still try to mate with female rabbits for several weeks after the testicles are removed. After three weeks the sperm are completely dead. Since the testicles are gone, no new sperm are being produced so it is safe to put a male and female rabbit back together again. However, whenever you put two rabbits together, regardless of the circumstances you must watch closely for signs of aggression. Aggressive rabbits left unattended can cause serious and sometime fatal injuries.

When a female rabbit is neutered, the ovaries, the oviducts, the uterus and often both cervixes are removed. Rabbits have a uterus that is made up of two long tubes with an ovary at one end and a cervix at the other. They have two cervixes unlike cats, dogs, humans and many other species. An incision is made in the area of the umbilicus and the uterus and associated structures are gently pulled out from the abdomen through this incision. The blood vessels supplying the uterus and ovaries are tied off with suture material and the reproductive organs are removed. The incision is suture with two to three layers of suture material. Since rabbits have incisors that are excellent at cutting through many materials, we find it beneficial to bury the final row of sutures under the skin so they are not accessible. In this way the rabbit has nothing to chew on or pull out. These sutures dissolve eventually over several weeks and there are not external sutures to remove. Some veterinarians use skin staples as the final closure, which also work nicely in rabbits, particularly the large breeds.

POSTSURGICAL CARE

It is important after any surgery to check the surgical site at least twice a day for any signs of unusual swelling, discharges or opening of the wound. Many rabbits will be off feed for a day after surgery, but this should gradually return to normal over the next two to three days. In addition, some rabbits will have unusual stools for a day or two including soft stools clumped stools, and irregularly shaped or small stools. If your rabbit is acting very uncomfortable, is extremely lethargic, is not eating at all or is unwilling to move, you need to contact your veterinarian right away. Your veterinarian may prescribe a pain medication for your pet post surgically which will help ease the discomfort of surgery and shorten the recovery time. It is usually not necessary to use an antibiotic after a routine neutering. One may be prescribed if the pet had other problems or if there were complications at the time of surgery. The majority of rabbits return to normal within five to seven days, which is a far shorter recovery period than most humans experience. The long term benefits of neutering far outweigh the temporary discomfort felt after the surgical procedure.